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EDITORIAL

Treatment of Diabetes Mellitus with a Minimum of Food Limitation and Blood Examination

The clinical method of treating diabetes aims at the improved utilization of foodstuffs through the administration of slow acting insulin

JAMES M. NORTHINGTON, M.D., *Editor*

As a doctor who has never preached nor practiced the sending of diabetic patients to hospital for "study and instruction," I welcome the article by a Cornell professor[1]; going even further in the simplification of the management of this common and lasting disease.

Read carefully what this doctor of vast experience of diabetes, under both the old rigid regimen and the 15-year-old, mild method which he has had so large a part in working out has to say; and put what you read into practice to the gratification of yourself and to the longer, happier living of many of your patients.

Since 1940 for all our patients, about 4000, the aim of therapy is to eliminate the symptoms of diabetes, avoid ketonuria, maintain the patient's optimum weight and restore him to social and economic usefulness. This is to be achieved by one dose of slowly acting insulin and *a self-selected, unweighed and unmeasured* diet, to suit his *tastes and appetite.* The treatment of course is individualized; the fat would not be treated as the lean.

The patient has a thorough physical examination and his weight is

1. Edward Tolstoi, M.D., New York Associate Professor Clinical Medicine, Cornell University Medical College.

recorded. He is told that if he cooperates his way of life need not be altered. He is not promised perfect health, even if his deportment ment is faultless. His diet differs little from that of the rest of the family and, as a rule, he is permitted average servings. Though candies, cakes, pies and ice cream are not the rule, they are permitted on occasions, and more often taken by the patient even though they are not on the menu. So far no harm has been observed from such dietary breaks.

INSTRUCTING THE PATIENT

The patient is taught to give himself a slow-acting insulin, preferably NPH, trial dose 15 to 20 units; if practical see the patient daily for 2 or 3 days and make certain that he has learned the technique, and then in a week. On his return, his weight is recorded, urine examined for sugar and acetone and he is questioned concerning any symptoms. *If he is symptom-free, maintaining his weight or is gaining, and has no acetone in the urine on the prescribed diet and insulin and, furthermore, is economically and socially adapted his treatment is considered satisfactory, regardless of the glycosuria.*

However, if in addition to glycosuria and an adequate caloric intake, the patient has fatigue, nocturia, polyuria, frequency or loss of weight, the dosage of insulin is increased by 5 units every 3 days until such symptoms disappear and the weight is optimum as before the diabetes set in. If the patient is gaining weight too rapidly and not eating too much, a reduction of the insulin by 5 or more units will bring the weight down.

Once the patient learns that he is to watch his weight and be alert for symptoms of diabetes and/or symptoms of hypoglycemia, he need not be seen often. *Many patients can be seen at semi-annual or longer intervals, enjoying good health in the interim.* They are told that the moment they lose their feeling of well-being or have symptoms of diabetes they are to report immediately. Thus the emphasis is on the patient. The objective is to have him to feel well, be free from symptoms, and one must make certain he avoids *hypo*glycemia. Not much emphasis is placed on the glucose concentration in the blood. Blood sugars are done only for diagnostic purposes.

We have, with the passage of time, established that diabetics treated by the clinical method had no more infections and their healing was not slower than nondiabetics, posteratively, and the incidence of coma was even less.

Much ado was made about the hyperglycemia exhausting the islets and thus increasing the insulin requirements of the patient. We examined the insulin requirements of 29 patients whose diabetes was *of 10 years* duration and during which time glycosuria was found at each examination. We found that 11 needed 5 to 10 units more insulin; 13 needed 5 to 10 units less insulin, and in the remaining 5 there was no change. Thus, over the period of years we have shown that many of the deleterious effects credited to hyperglycemia, were hypothetical and indeed contrary to fact. The only remaining objection to the general acceptance of this technique, although its use is increasing, is that the hyperglycemia and glycosuria are the causes of vascular degenerative lesions, with the resulting retinopathy, nephropathy, neuropathy and hypertension. There abounds much speculation about this relationship but when the facts are filtered it becomes clear that:—

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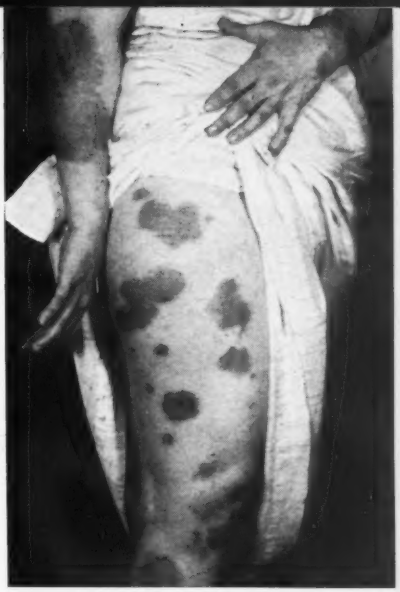

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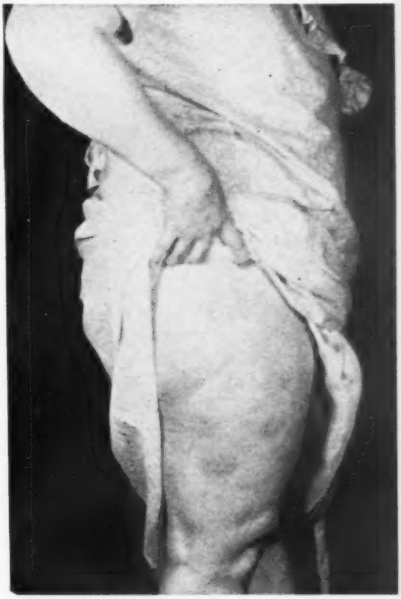

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RIASOL for PSORIASIS

(1) Degenerative vascular lesions are more prevalent among diabetics.

(2) The longer the duration of the diabetes the greater and more extensive their incidence.

(3) The cause for these lesions is unknown.

The clinical technic is not quite 15 years old. There are two groups to report, one of which the author treated personally for 13 years; the other personal supervision was of less duration but the diabetes in both groups was present from 11 to 29 years. In the first group 2 of the 10 patients showed albuminuria, retinopathy and hypertension; in the second group of 13, retinopathy and albuminuria were present in 6, and hypertension in one. These figures are not at all out of line with results obtained by the usual chemical technique.

Because of our experimental studies and clinical observations it is submitted that the clinical method of treating diabetes is sound, physiologically, as with the use of a slow acting insulin it aims at improving the utilization of foodstuffs — a defect noted in diabetes. From a practical point of view it is simple, not burdensome, and safe, as to date it has not been conducive to coma, infections, and vascular sclerosis any more than the exacting and burdensome method which aims at a sugar-free urine and normal blood sugar.

Treatment of the Patient With Acute Pulmonary Edema

Demerol, 100 mg, orally or IM, is the opiate of choice. Oxygen has been found to be helpful. Slow injection (about 50 seconds) of 0.25 to 0.5 gm. aminophyllin *IV* is often valuable in relieving or preventing bronchial spasm or when Cheyne-Stokes respiration occurs.

Bloodless phlebotomy may be performed by applying tourniquets to three of the extremities at a pressure slightly above the diastolic level. If this procedure fails to increase cardiac output, a phlebotomy of 500 to 800 c.c. should be tried. Failing this *IV* mercurial diuretics and ouabain may be tried.

Within recent years, there has been considerable investigation of anti-foaming agents for therapy of acute pulmonary edema. These agents may prove invaluable for the removal of bronchial symptoms. Probably the most outstanding anti-foaming agent is pure oxygen with 95% ethyl alcohol in the humidifier. Oxygen is administered first, then alcohol vapor is slowly added. The patient is allowed to inhale the full concentration for 30 min. Nasal catheter and positive pressure masks have proved the most practical methods of application. Most patients feel "better" after inhaling alcohol. Improvement is generally prompt and occurs in 87% of the cases.

Venesection often is most helpful. Morphine, ¼ gr., with atropine, gr. 1/50 should be given hypo. and the atropine repeated in 15 min. if there is no change. One of the digitalis preparations should be given *IM* or *IV*. Bleeding and morphine are the most effective measures. Patients who have repeated attacks should be warned against overexertion and with the first symptoms of an attack should be given morphine and atropine hypo.

SPECIAL ARTICLE

Should Patients be Told When the Diagnosis Is Cancer?

A report based upon the results of a questionnaire distributed to 1000 *individuals,* 477 *of whom replied*

OTIS R. BOWEN, M.D., *Bremen, Indiana*

When cancer of any type is discovered and proved in an individual, the family physician is immediately confronted with a tremendous problem. If cure is impossible, then the physician must do all in his power to keep the patient living as long and in as much of comfort as possible, and still stay within the limits of the desires of the patient and his family. Should the patient be told? Who should tell the patient? At what stage of the disease should the patient be told?

My opinion was that the patient should be told honestly but cautiously all that the physician had discovered, the family first being consulted; however, it seemed that almost always they desired that the patient not be told because they feel that the patient could not tolerate the knowledge that he has cancer. Because of the complexity of the problem, because it so closely involves the patient-doctor relationship, because of the desire to know the best procedure to follow, and because of my inability to find any conclusive answers from the literature, I decided to conduct a survey to learn the facts.

Since the survey, my opinion has changed only insofar as insisting that the patient be told but that plenty of time be taken to explain the reason to the family. One should explain to the family that if the cancer is in a stage at which a cure is possible by any means,

then the patient should understand why he will be subjected to the treatment advised. If the cancer is incurable but can be palliated, the patient would understand the reason for the type of treatment; and that the relief will most likely be temporary, that the treatments may have to be repeated, and perhaps eventually be of less benefit. Then the patient will understand when the inevitable approaches, have no unkind feeling toward doctor, family, or friends; and not lose confidence, not flit from doctor to doctor and from hospital to hospital (and very often from quack to quack), spending more and more money for less and less help and becoming more and more unhappy along the way.

If the eventual outlook is dark, he will have ample time to get his property affairs in order while there is no question as to his mental fitness. Then there will be more time for intense religious preparation, which certainly lightens the load of the doctor who has the handling of the problem.

QUESTIONNAIRE DISTRIBUTED

A questionnaire was distributed to 1,000 individuals. After a reasonable time, 477 questionnaires with answers were returned.

Following is a summary of the answers of these 477 individuals—between the ages of 18 and 90—to questions to determine if patients desired to know: (1) whether or not they had cancer; (2) whether or not they desired that their close relatives be told if they were afflicted with cancer; (3) whether or not they thought persons with cancer could be fooled into thinking they did not have it; (4) and who they thought should tell the patient of the diagnosis of cancer having been made. Each person was asked to give a reason for his answer.

The great majority of those found to have the disease not only desired the truth to be told to themselves, but also desired that their close relatives be informed; a large majority did not feel that patients could be fooled; and nearly all said the doctor should be the one to tell the patient the facts about his or her illness. Most individuals expressed desire for cooperation between doctor, minister and close relatives in handling the situation. There was no great difference of opinion with difference of age and sex; but those aged 18 to 35; and more women than men expressed trust and confidence in their doctor, and those 35 to 50 seemed more cancer-conscious than those of other age groups. Answers varied little with occupation or religion; however, members of the business and professional group gave more detailed reasons for their answers.

CONCLUSIONS

After long, hours of study and preparation of this report it is my opinion that the problem should be handled as follows and in the order listed:

1. First, verify the diagnosis by rechecking and consultation.

2. Study the patient's background with reference to personality, religion, family life, etc., to determine whether or not he would be better off to be told outright, or whether or not he would prefer a close relative or his minister or both to join with the doctor in carrying the tidings.

3. Consult the nearest relative and explain in detail the diagnosis and why you think the patient should be told.

4. Tell the patient and explain in detail the diagnosis, the proof of the diagnosis, the type of treatment needed, how long the treatment may be expected to be required, what he can expect from treatment, esti-

mate of the cost of treatment, where he can seek aid if unable to cope with the problem—and advise that he can get spiritual comfort and encouragement by confiding fully in his minister.

5. Talk with the patient's minister unless advised not to by the patient or his family. I have received excellent cooperation from every minister I have ever talked with concerning patients' problems, and the patients and their families have been grateful for this added service and understanding.

6. The following types of patients should not be told: those too young to understand; those with serious mental impairment; those few who have previously expressed their desire never to be told if they had cancer, and those few of the very aged who have a malignant tumor known to be slow in growing and not likely to shorten their days.

Repeatedly patients expressed the desire for truth, candor, honesty, trustworthiness, and a Christian attitude on the part of the doctor when handling not only the cancer problem but in all patient-doctor relationships. This, we cannot ignore.

* Abridgment of an article first appearing in the *Indiana State Medical Journal*, Apr., 1954. This publication by permission.

Treatment of Lame Backs

Most lame backs recover under conservative measures. Even a displaced disc should be given the benefit of such therapy because a great many recover under it.

In a very acute condition, especially with sciatic pain, bed rest and sedatives are indicated. The bed should be firm and flat. A board between mattress and spring will increase the comfort of many, but sometimes the board is not well tolerated. Hot packs applied to the low back for 20 min., 3 or 4 times a day, also increase the patient's comfort. When the patient is prone a pillow under his abdomen prevents lordosis which is a source of pain.

In the less severe acute attacks, cross layers of adhesive strapping from the inferior angle of the ribs to the coccyx, this layer covered with another of adhesive to give more stability, will relieve many of the acute attacks.

If the stiffness, pain and limitation of motion continue after 10 days, then a tailor-made corset is worn until signs and symptoms disappear.

Before the apparatus is discontinued, exercise, slow intermittent squeezing of the buttock muscles, and head-raising 3 or 4 in. at least 25 times twice a day; later, voluntary stretching of the fascia lata, when contracted, should be done. Frequently advised is forward bending: it accomplishes nothing in rehabilitation, and may even cause a recurrence of the complaint. When there is a mild sciatic pain, a lift in the heel of the shoe on the opposite side will often stop the pain within a few days. In case of functional scolosis, the heel on the side of the convexity of the curve must be built up until the spine is plumb—relieves a great many lame backs. Even in cases of ruptured disc conservative measures should be given a fair trial; but, when the sciatic pain is severe and there is diminution of the ankle jerk, operative removal of the nucleus pulposus is indicated. A number of patients who have had their nucleus pulposi removed still suffer from recurrent backache. These patients need corsets and exercises.

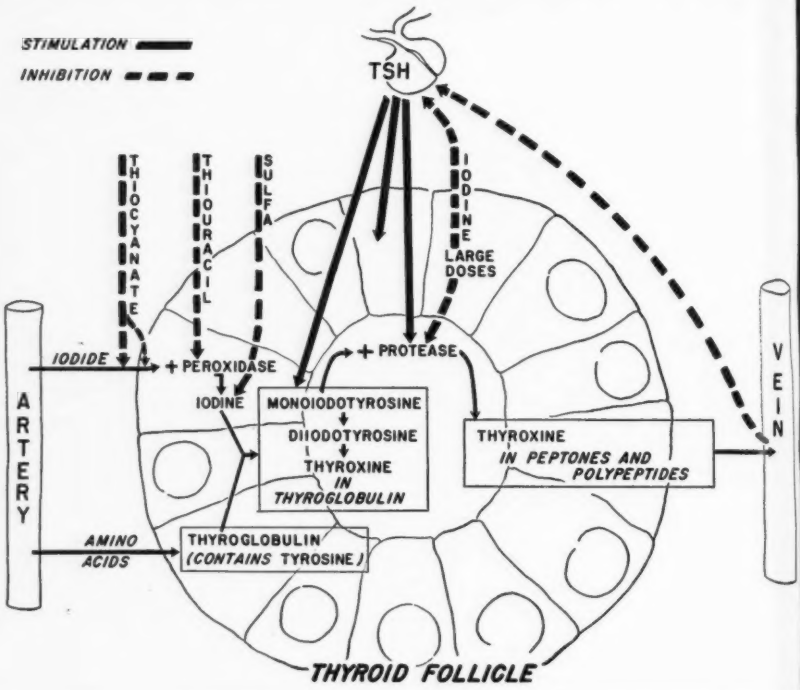
F.R. Ober, Boston, *Jl Maine Med. Asso.* 44:281, 1953.

The Choice of Treatment in Toxic Goiter

Thyroidectomy is the treatment of choice, but patient should be prepared by giving iodine or propylthiouracil

HERBERT H. DAVIS, M.D., *Omaha, Nebraska*

Developments in the last ten or fifteen years have greatly improved the results in the treatment of toxic goiter. However, they have made the choice of treatment more complicated, as we have to decide between the use of iodine, of antithyroid drugs, of radio-iodine, and of surgery. If treated properly, the mortality should be practically nil, and the excellent results should approach 100%. Before 1922 many very toxic goiters were treated by surgery. In the severe ones pole ligations were done first, and a little later thyroidectomy was performed in one or in two stages. Following 1922 iodine was used in the preparation of these patients, and to some extent decreased the mortality rate. However, many of them still needed pole ligations to improve their condition to withstand thyroidectomy, and stage operations still continued. While the mortality decreased some, still a number of such patients would die in thyroid crisis. In 1938 radio-iodine began to be used, and in recent years it has been used very generally. In 1941 antithyroid drugs were added to the list, the commonest of which are propylthiouracil and tapazol. By the proper use of these, the mortality is now decreased to about 0.2%. There should be a definite plan of treatment of toxic goiter patients rather than to use one of the drugs or procedures, then if it does not give a quick enough result, shift to another method. It may be necessary to combine more than one, but it



should be done with a very definite plan.

The above diagram shows some facts in the physiology of the thyroid gland which explains the use of iodine and antithyroid drugs. The function of the gland is to selectively take up iodide from the circulation and to synthesize it to the active hormone, thyroxin, which is stored in the thyroid and excreted into the circulation as needed by the body. This hormone, which stimulates the metabolism of all the cells of the body, is 65% iodine by weight, and iodine is essential in its production. When there is iodine deficiency in the body the thyroid gland, in an effort to get enough iodine to manufacture the hormone, hypertrophies and produces a goiter. This is an "iodine-deficiency goiter" which is not toxic and is relieved by giving the patient adequate iodine. The daily requirement of iodine in the normal individual is 100 to 200 micrograms; the amount in one drop of Lugol's solution is 6 milligrams—enough iodine to supply the requirements of a normal indivilual for 30 to 60 days.

Iodine ingested with food or as a drug is changed in the intestinal tract to iodide, which is quickly absorbed into the extra-cellular fluid. It is then quickly and selectively absorbed by the thyroid gland. The more it is utilized by the thyroid, either due to hyperthyroidism or iodine deficiency, the faster it is taken into the gland. In the thyroid cells this iodide is oxidized

by peroxidase to iodine. Amino acids are also taken up from the blood stream by the thyroid cells and changed to thyroglobulin, which contains tyrosine. The iodine then combines with the thyroglobulin molecule and unites with the tyrosine to form diiodotyrosine and finally the active thyroid hormone, thyroxine. This process can occur in the thyroid cell or in the lumen of the thyroid follicle. The product is then stored in the lumen as colloid.

NEED OF THYROXINE

The thyroglobulin molecule containing thyroxine is too large to get out in any quantity from the lumen of the follicle. As thyroxine is needed, the thyroglobulin is acted upon by protease, which breaks down the thyroglobulin into peptones and polypeptids. These smaller molecules can get out and carry thyroxine with them to the blood stream and to the cells of the body. Thyroxine is given up to the blood stream as needed to stimulate the cells of the body. Increased demand, an example of which is pregnancy, can cause an increased excretion of thyroxine into the blood stream.

The thyroid gland is stimulated by the thyrotropic hormone formed in the anterior pituitary, and the pituitary in turn may be stimulated by higher nervous centers. Pituitary stimulation causes an increased formation of thyroxine, hyperplasia of the cells of the thyroid gland, increased action of protease and, therefore, increased liberation of thyroxine into the blood stream. This type of action occurs in Graves' disease. Thiouracil and the main group of antithyroid drugs inhibit the action of peroxidase on the iodide in the thyroid and thus iodine is not formed to unite with the tyrosine. Therefore, there is a decreased amount of thyroxine formed by the gland. Sulfa drugs occasionally combine with the iodine, so it is not left to form thyroxine. Thiocyanate prevents the absorption of iodide by the thyroid gland and also causes excretion of iodides that are in the thyroid gland. Therefore, these drugs also prevent or reduce formation of thyroxine.

Iodine as Lugol's solution, potassium iodide, etc., acts in quite a different way. It inhibits the pituitary and so decreases the activity of the thyroid gland in general. It also inhibits the activity of protease in the acinus of the gland. Therefore, the thyroxine formed is retained and cannot be given up in a great quantity into the blood stream. In other words, the doors are closed and the thyroxine in the thyroid cannot get out for stimulation of the cells.

From the above remarks it can be seen that the action of iodine is much more rapid than that of antithyroid drugs. In the case of iodine, the supply is cut off immediately and so the result is rapid. In the case of antithyroid drugs, the supply that is in the gland must all be used up before a remission occurs. This may take many weeks. On the other hand, it is seen that when iodine is used an operation may open many acini and lead to flooding of the circulation by the thyroxine lying in the thyroid gland producing a postoperative exacerbation of toxic symptoms. This can never occur in a patient adequately treated with antithyroid drugs as there is no excess thyroxine in the thyroid gland to be liberated.

QUICK ACTION ON THYROTOXICOSIS

Lugol's solution or other forms of iodine may be used for quick action on the thyrotoxicosis. Iodine should never be the definitive form of treatment, as the gland gets more and more thyroxine stored in it and

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commonly after a period of many months the effect is lost and the thyroxine can overflow into the circulation in spite of continuing iodine. Larger doses are of no avail. A patient who has been given iodine for a period of time takes longer to prepare for surgery with propylthiouracil than the average person, the reason being there is much more thyroxine in the thyroid and so it takes a longer time to utilize it. There may be danger in suddenly stopping the use of iodine in a very toxic patient as there might be greatly increased liberation of thyroxine stored in the gland, producing a thyroid crisis.

REMISSION OF SYMPTOMS

Propylthiouracil, in cases in which there is no idiosyncrasy so it may be used in adequate doses, will nearly always produce remission of symptoms of hyperthyroidism. This remission is slow but after it occurs there will never be severe exacerbation of toxic symptoms following thyroidectomy on a patient so prepared. There is a greatly increased vascularity and friability of the thyroid gland, however, and therefore before operation iodine should also be used to avoid complications attending these two conditions.

Propylthiouracil is only fairly successful in the permanent treatment of hyperthyroidism. While patients can be brought into remission, this is not permanent in about half the cases if the drug is stopped.

Much more permanent results may be obtained by the use of radio-iodine or surgery than with propylthiouracil. Radio-iodine is absorbed from the intestinal tract and selectively absorbed into the thyroid gland as is iodine. In the same way, the more toxic a patient is the more the absorption. The rays of radio-iodine remain well localized and so produce the radiation effect in the thyroid gland and very little in any other part of the body. It has enough destructive action on the cells of the thyroid to decrease their activity in forming thyroxine. This will take four to eight weeks, but if the proper dosage is given, it tends to remain permanent. Radio-iodine may be given in water by mouth and so is a very simple form of treatment. If too little is used, a little more may be given in two months or so. This can be done two or three times if necessary to decrease the activity to just the point desired. It is probably safer than giving a very large dose all at once, as some cases are more sensitive than others. By this method, myxedema is rarely produced. Radio-iodine takes two or three months, is simple, is cheap, there is no hospitalization, and no prolonged disability. There is also no danger of damage to the recurrent laryngeal nerves or parathyroids.

RADIOIODINE

The theoretic objection to radio-iodine is the possibility of its causing the development of carcinoma 15 to 20 years in the future. 18 cases have been so produced, but it has not been used long enough to tell. Excellent results occur in Graves' disease by the use of radio-iodine in 90 to 95%. It is not as effective in toxic nodular goiter and has to be used in much larger doses. In very large toxic nodular goiters, surgery should be used, because pressure symptoms should be relieved as well as toxicity, and the presence of carcinoma can be determined only by removal and microscopic examination. The latter cannot be done, of course, when radio-iodine is used, and so carcinoma may be missed.

Thyroidectomy is also an excellent form of treatment for toxic goiter. The patient should not be operated

on while in a thyrotoxic stage. He should be prepared by iodine or, more commonly, propylthiouracil with iodine given at the same time or at least during the last two weeks prior to surgery. When prepared properly, the mortality from thyroidectomy should not be over 0.2%. Inasmuch as surgery has been the treatment for toxic goiter for such a long time, the results are known. They are excellent in 90 to 95% of the cases. We know there is no danger of cancer being produced by thyroidectomy, but there is a possible danger of myxedema and of damage to recurrent laryngeal nerves and to parathyroids. Thyroidectomy is quicker but should not be done until the patient is properly prepared. Propylthiouracil and other antithyroid drugs are not nearly as effective for definitive therapy. Only 50% of these cures are permanent. Therefore, it seems best to use these only as a pre-operative form of treatment.

SUMMARY

Iodine produces a quick but often incomplete remission and should not be used as a permanent form of treatment. Antithyroid drugs produce slow but quite complete remission. However, the remission in 50% of the cases is not permanent. Therefore, it is best used as a preoperative preparation. Radio-iodine in Graves' disease will produce a permanent remission in 90 to 95% of the cases. It is quite safe and quite simple. Thyroidectomy in patients properly prepared by iodine and the antithyroid drugs produces about equally good results as radio-iodine in Graves' disease, but is more of a procedure and more expensive. Thyroidectomy is the preferred treatment in toxic nodular goiter. There may be some differences of opinion in a small toxic nodular goiter, but all agree to its use in the large one.

Accidents During Infancy and Childhood

Accidents are responsible for the death of more infants and children of both sexes between the ages of one and 14 years than are the four most fatal diseases of childhood—pneumonia, cancer, congenital malformations, and tuberculosis. And for every accidental death there are at least 100 serious, disabling or permanently crippling, but nonfatal injuries. Such tragedies, and most of these accidents are preventable.

260 infants and children were admitted to hospital in 1946-1950 because of serious accidental injuries; 11.4% of all admissions to the pediatric ward during this period of 5 years.

Accidents occurred most often during the second year of life. There were annual peaks during July and August and daily peaks between noon and 8 p.m.

Accidents at home were responsible for ⅓rd, farm life 1/5th, motoring 1/6th, and participation in sports for 1/10th of the total number. Nearly 2/5ths were due to falls. Blows, cutting or piercing instruments, fire and hot water were common means. Fractures comprised 23.7% of the total number of injuries with burns, lacerations, contusions, and concussion of the brain next in order of frequency.

Average hospital days 6.5, aver. visits to outpatient dept. 2.4; 30% of the children were "repeaters." The mortality was 0. 7%.

J. H. Powers & J. E. Lincoln, *New York Jour. of Med.* 53: 2957, 1953.

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Cervical Erosions—Simple, Effective Treatment With Bichloracetic Acid

Based on his results, this doctor believes the routine use of bichloracetic acid is indicated in cervical erosions

GERALD A. RAU, M.D., *Manitowoc, Wisconsin*

The majority of women have, or have had cervical erosion. The fact that it seems to be more common in married women, does not establish marital relations or childbearing as a cause. We tend to neglect a pelvic examination unless symptoms call attention to the pelvis. A complaint of leukorrhea, of vaginal bleeding or pruritis, or suggestive adnexal disease may be the only reason one does a pelvic examination. Too frequently the use of the vaginal speculum is neglected. It is my belief that if the speculum is used and especial attention paid the cervix, cervical erosion, in varying degree, will be found in the majority of women.

The pathology of cervical erosion is a loss of columnar epithelium exposing the stroma, and at the base of the crater so exposed, a true inflammatory process is found. Few textbooks give much space to either the pathology or the etiology of cervical erosion. One may get the impression that cervical erosion is caused by trauma inflicted in delivery. While that may be a contributing factor, infection is the real cause.

The erosion involves an area about the external os and usually extends competely around the os, as a band a few mm. to 1 or 1.5 cm. in width, red, raw, glistening with vaginal secretion. It contrasts markedly with the pale grayish cast of the healthy

cervical tissue beyond it. Occasionally the erosion involves the entire cervical area.

Frequently there are, in the mucous membrane of the cervix, small transparent, spheroidal retention cysts, easily destroyed in treating the erosion.

ELECTRIC CAUTERY

Neither douches, tampons, nor suppositories prevent or cure erosion. Treatment has narrowed down to the use of the electric cautery, with or without anesthesia, making radial incisions deep into the stroma. The incisions begin at the opening of the cervical os, and are placed ⅛ to ¼ inch apart, carried to the outer border of the face of the cervix. This treatment causes necrosis of cervical tissue. For ten days to three weeks, the patient will note a vaginal discharge, whitish or grayish, which may be streaked with blood. One may be disappointed with the results as erosion may remain in varying degrees.

Some practitioners prefer a "coring out" of the cervix. This is especially indicated for a boggy, infected cervix, where the glands are so badly infected as to amount to a hypertrophic cervicitis. Coring out removes a deep cone. The base of the cone is the area of erosion; the tissue removed includes the glands and part of the stroma of the external portion of the canal.

The methods outlined are the most widely used. For the past six years, the writer has used bichloracetic acid in the treatment of cervical erosions and endocervicitis.

Pure bichloracetic acid is a heavy, clear, colorless liquid at room temperature, and possesses unique cauterizing and sterilizing properties, penetrating tissue sufficiently to destroy many types of infectious and non-infectious lesions of the skin and mucous membrane. The acid has powerful disinfectant and bactericidal and fungicidal properties. Its usefulness in surgery is attested to by the tens of thousands of physicians and surgeons who use it daily in the treatment of superficial lesions ranging from xanthelasma palpebrarum, moles and venereal warts to dense warts, corns, calluses and cutaneous horns.

My reasons for the departure from the generally accepted method were:

1. The electro-cautery frequently fails, at least partially, in its purpose, necessitating further treatment with antiseptics or chemical cauterants.

2. Both radial cauterization and conization are drastic for the amount of pathology.

3. The amount of scar tissue formed following radial cauterization or conization is objectionable.

4. Cauterization with bichloracetic acid is simple and convenient to use in the office.

5. Bichloracetic acid immediately destroys the tissue which it touches, and it can be evenly applied to the entire diseased surface.

6. Experience with lesions of the skin and mucous membranes showed that the cauterizing effect of the acid was confined to superficial tissues but could be carried deeper by repeated treatment at short intervals.

7. The probability of useful sterilizing action seemed greater for bichloracetic acid. Certainly in radial thermo-cauterization infected glands and tissues are often not even subjected to heat, because tissues are not good thermal conductors.

8. Bichloracetic acid is convenient to keep in the office. Packages of the treatment material present small bulk and small cost. The acid, in a sealed ampul, does not deteriorate and very little is required for a single treatment.

PLAN OF TREATMENT

The plan of treatment is outlined as follows:

Insert vaginal speculum, and examine cervix with a good light.

Have two fairly large cotton or gauze swabs on applicator sticks and one small, rather tightly-wound cotton swab on another.

Use one large cotton swab to wipe away mucus from the cervical canal and from the eroded area.

Dip the small, tightly-wound swab into bichloracetic acid and permit it to drain against the inside of the acid receptacle. (A special braided cotton swab is convenient.)

While areas to be treated are still free of mucus, apply bichloracetic acid, with the small well-drained swab, to all eroded areas; if necessary, the swab may be rotated within the cervical canal. The swab may be re-dipped in the acid or a fresh swab may be used if the first application does not cover all diseased areas.

After a minute or two, touch gently, with a large cotton swab, all areas to which the acid has been applied. A slow, rotating motion of the applicator increases the efficiency of the swab in drying any remaining acid.

In one or two weeks another treatment may be given, although this is usually not necessary. Caution: If too much acid is used, a fine trickle may be observed by watching a line of white moving downward on the cervix. Or, one may inadvertently touch the vaginal walls with the applicator swab. Should this happen, touch the area at once with a dry cotton swab on an applicator stick, following immediately with a swab well moistened with water.

Nabothian cysts are usually destroyed by this treatment, if one resists treatment, a second application can be used to destroy it. A cyst may also be destroyed by puncturing it with a sharpened applicator stick dipped in the acid.

It is emphasized that all applications of acid should be made on cervical surfaces which have been well dried.

Following this treatment, there will be a vaginal discharge for 5 to 10 days, not usually profuse, nor foul-smelling.

In most cases the cervix will have completely healed after 10 days. The process can be repeated at any time and to the patient the procedure is *not an operation, but a "treatment."*

My own cases and those reported to me total more than 1500 in which bichloracetic acid was used to treat cervical erosions. Of my own 507 individual cases, the results were unsatisfactory in only 5 cases (1%). Electro-cauterization was used in each of these cases and although there was still some erosion three months later, sufficient relief had been obtained so that the treatment was considered successful.

SINGLE TREATMENT WITH ACID

In 23 cases (4.5%), the erosion was found to be insufficiently cleared up six weeks after a single treatment with the acid. All of these were cauterized with the acid a second time and in 6 of these cases a third acid application was used.

In 10 cases (2%), a second application of acid was used 7 to 10 days after the first treatment. The results were satisfactory in all of these.

A case is considered cured if one year after treatment the cervix presents no erosion or one causing no symptoms. 476 (94%) of my series of cases met this criterion.

There is now on the market, a special unit which facilitates the use of bichloracetic acid for cervical cauterization. It contains 2 c.c. of the acid in a special sealed ampul, an acid receptacle and support, suit-

able swabs, both for application of the acid and drying of the tissues, as well as sharpened applicators for treating Nabothian cysts and directions for use. Each unit is complete for one treatment.

CONCLUSIONS

I believe the routine use of bichloracetic acid is warranted in cervical erosions. The method here presented has been found very effective and satisfactory from all points of view.

Treatment of cervical erosion and Nabothian cysts with bichloracetic acid should not be considered adjunctive therapy, since it furnishes an effective means of treatment when used entirely alone.

With ordinary care, the method is perfectly safe in the hands of the general practitioner. It is less drastic than radial thermo-cauterization or conization, produces far less scar tissue, less discomfort, and there is less expense. The method is entirely adequate for the amount of pathology in the vast majority of cases.

* The Bichloracetic Acid used in all cases was *Surgical grade* furnished by Kahlenberg Laboratories, Sarasota, Florida.

Oral Cortisone Treatment of Hypopituitarism

The following account concerns 4 patients with severe hypopituitarism who have been given small doses of cortisone orally over periods of 2 years. Several aspects of the syndrome of hypopituitarism could reasonably be considered as manifestations of the secondary thyroid hypofunction. These include the mental slowness and lack of interest, the physical sloth, the extreme sensitivity to cold, and the absence of sweating—symptoms which are characteristic of myxoedema. It is therefore very interesting that these particular aspects are influenced by cortisone, which is an adrenal hormone, but not by thyroid.

Until 10 years ago a variety of treatments were used in hypopituitarism, but, apart from the effect of pregnancy, the results were not impressive. When testosterone was first introduced its value was obvious, and the patients and their relatives usually insisted that the treatment be continued. Cortisone in small dosage produces even greater enthusiasm, and all the patients treated so far have invariably returned for a further supply of tablets well before their last supply is exhausted.

Testosterone produces in patients with hypopituitarism a sense of well-being, and improves the physical strength and mental activity. It causes a regrowth of public and axillary hair and some return of libido. Cortisone has similar but great effects on the physical and mental activity, though it does not usually restore body hair. We have therefore tried the effect of giving both substances together, but have not observed any definite additive effect apart from that on the body hair. If after a course of this combined therapy the testosterone is stopped and the cortisone is continued alone, the patient's general condition remains as good as before. On the other hand, a patient who has had cortisone and testosterone together is not nearly so well if an attempt is made to continue treatment with testosterone but without cortisone.

It seems that cortisone therapy is the most useful method of long-term treatment of patients with hypopituitarism. A dosage of 12.5 mg. orally each day appears to be adequate for maintenance.

H.L. Sheehan et al, *British Med. Jl*, 4864:723, 1954.

Clinical Observations on Rheumatic Fever—Diagnosis, Prophylaxis, Treatment

The keystone of treatment is initial bed rest, but not total inactivation of the child

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DIAGNOSIS:

The typical case of acute rheumatic fever is readily diagnosed. Other acute illnesses may at their onset simulate rheumatic fever. (Table 1.) Conversely rheumatic fever may present an unusual symptom-complex initially causing confusion with the diseases listed in Table 2.

In the first group additional laboratory tests or the appearance of more characteristic clinical features soon makes the diagnosis. The appearance of acute joint manifestations, or a trial of aspirin therapy will often clarify the picture where rheumatic fever begins in an atypical fashion.

TABLE 1: Commoner Illnesses that May Simulate Acute Rheumatic Fever at Onset:

Acute anterior poliomyelitis	Acute leukemia
Brucellosis	Sickle-cell anemia
Acute serum sickness	Meningococcemia
Bacterial endocarditis	Acute osteomyelitis

Infectious mononucleosis

TABLE 2: Atypical Onset of Rheumatic Fever May Simulate Following Illnesses:

Acute appendicitis	Acute urinary-tract infections
Acute meningoencephalitis	Acute poliomyelitis
Acute osteomyelitis	

The recognition of low-grade, chronic rheumatic activity is often much more difficult. Early, accurate diagnosis is important. Careful and repeated observation is necessary in many cases. Too often a diagnosis of rheumatic fever is made only because other illnesses have been excluded. Needless stigmatization of children as "rheumatics" or "cardiacs" has been the result. We have often preferred to observe a child for weeks before considering a questionable group of symptoms as definitely indicative of rheumatic fever.

LOW-GRADE ACTIVE PHASE

In the low-grade active phase the usual presenting complaints (Table 3.) are non-specific and may be manifestations of many forms of chronic illnesses or even of no severe illness at all. It is rare that the child is seen in the clinic because of acute joint manifestations. Although at times a story of mild fever is elicited, more often the temperature has not been taken. Epistaxis in our experience has almost invariably been due to self-traumatization. Although the child may show the greenish pallor suggestive of rheumatic fever, this is also seen in children with other chronic illnesses.

A verified history of previous rheumatic fever, definite rheumatic heart disease, or a strong family history of rheumatic fever increases the significance of these findings. If subcutaneous nodules or erythema marginatum happen to be present, the diagnosis is reasonably certain.

Common sites for nodules are over the olecranon process, the dorsal surface of the fingers and toes, and behind the mastoid process. In the latter area, glands may be mistaken for rheumatic nodules. Erythema marginatum is transient, usually irregular in outline, more marked at the periphery and more commonly seen over the abdomen, lateral thorax, inner aspect of the arms and over the buttocks.

The establishment of active carditis is often difficult on initial examination. A disproportionate tachycardia is diagnostic, but tachycardia is commonly present in children when first seen. Poor quality of heart sounds offers a diagnostic clue. Significant murmurs may be present to indicate past rheumatic valvular involvement.

The history of occurrence of paroxysmal tachycardias in a known rheumatic cardiac, with only a minimum or even a lack of other evidence of rheumatic infection, may be indicative of activity. Congestive heart failure in a young rheumatic patient is also considered due to active rheumatic fever, even though no other signs of activity exist. It is quite common at this time for the erythrocyte sedimentation rate to be normal.

TABLE 3: Common Presenting Symptoms of Chronic Active Rheumatic Fever

Muscle aches, arthralgias, pains behind knees, stiff neck	
Fatigue	Child "just doesn't look well"
Anorexia	Epistaxis

Electrocardiographic PR interval prolongation or T wave abnormalities on initial examination do not necessarily indicate active rheumatic fever. These may be permanent changes due to previous rheumatic infection, or may represent nonspecific myocardial involvement seen in a variety of conditions. A changing pattern found in serial tracings is more suggestive, although still not diagnostic.

CHOREA

Chorea, when marked, rarely presents a problem in diagnosis, but when minimal, nervousness, habit spasm and hyperactivity must be differentiated. Here, too, repeated observation is frequently necessary. The presence of other rheumatic manifestations helps, but not uncommonly chorea is an isolated rheumatic symptom, other clinical and all laboratory findings negative.

Unless the initial history and physical findings are unequivocally diagnostic of rheumatic fever, we have a complete blood count, erythrocyte ESR and ECG taken at this time. The mother is instructed to keep the child home, but not restricted to bed, for the next week. During this period a rectal temperature is taken and recorded at 4-hour intervals during the day, and the nightly sleeping pulse is obtained. The child is seen one week later and the criteria for the diagnosis are then reviewed. Daily temperature rises to 100.2° or more, and a sleeping pulse over 90 are abnormal, the latter suggesting the presence of carditis.

It must be stressed that the presence of leukocytosis, anemia, an elevated ESR or the presence of C-reactive protein in the serum do not establish a diagnosis of rheumatic fever. These are at times corroborative if adequate clinical findings are present. The presence of a high, or a rising anti-streptolysin 0 titre does not establish a diagnosis of rheumatic fever, but indicates only a fairly recent infection with a Group A Beta hemolytic streptococcus. At times, in problem cases, this may be helpful. Not uncommonly, however, when the patient with chronic active rheumatic fever is first seen, many weeks or months have passed since the streptococcal infection. By this time the antistreptolysin 0 titre has likely returned to normal or remains at a mildly elevated stable level.

PROPHYLAXIS:

The mechanism of the development of rheumatic fever is still unknown. We do know of the occurrence of the attack one to three weeks following nasopharyngeal infection with the Group A Beta hemolytic streptococcus. In the "rheumatic" subject the anticipated recurrence of active rheumatic fever following such infection is 33% to 50%. The importance, therefore, of prevention of this infection in the rheumatic is evident.

Fortunately the hemolytic streptococcus is highly susceptible to low concentrations of penicillin and sulfadiazine, so that the constant low levels of these drugs in the tissues will suppress growth of the organisms. The choice of methods may hinge on cost of drugs, cooperation of patient, and feasibility of follow-up.

1. Penicillin orally as 200,000 Unit tablets twice a day, one hour before breakfast, and at bedtime.
2. The IM administration of Benzathecil Dibenzylethylene — diamine Dipenicillin G (Bicillin, Wyeth) as 600,000 Units every two weeks, or 1,200,000 Units ever four weeks.

3. The daily oral administration of sulfadiazine, 0.5 gm. for children under 60 pounds, and 1 gm. for those heavier.

The usual precautions and observations for toxic and allergic reactions to these drugs must be observed. Their incidence is very slight, and the advantage of prophylaxis far outweghs the danger of drug reaction.

The frequency of recurrent episodes of rheumatic fever diminishes steadily and progressively each year that passes after the initial attack. Prophylaxis is to be maintained for at least five years if the previous attack occurred in a patient over 18 years of age, and in children until at least to the age of 18. Observation may prove the value of indefinite continuation of prophylactic medication.

Our experience over the past five years with the oral administration of penicillin has been most gratifying. The few of recurrences have all been due to failure of the patient to continue on the prophylactic regimen. The anticipated incidence of prophylaxis break-through is 2-3%.

TREATMENT:

It has been common experience to see children with obvious acute rheumatic fever put to bed, given neither cortisone, ACTH, nor aspirin, and recover with no residual heart disease. It has been equally common to see others receive adequate dosages of these drugs, alone or in combination, started at the very onset and continued for adequate periods of time, develop evidence of heart involvement with residual valvular deformity and cardiac enlargement.

The keystone of treatment is still initial bed rest, but not total inactivation of the child. This is neither obtainable nor desirable. Occupational therapy, continuation of schooling, and sedentary bed activities make the regimen less onerous, and lend a note of optimism regarding the child's future. Penicillin or sulfadiazine should be instituted immediately on the same schedule as indicated under prophylaxis.

The child with high fever, acute joint manifestations and severe carditis should receive cortisone or ACTH without hesitation. His fever and joint pains will subside rapidly: he will feel better and his appetite will improve. Laboratory abnormalities will be suppressed, but this does not necessarily indicate that the degree of carditis will ultimately be lessened.

HORMONAL TREATMENT

Our experience in hormonal treatment of the patient with low-grade rheumatic activity has led us to two conclusions. Where the child is not severely ill, has no or little fever but evidence of a chronic smouldering carditis, cortisone and ACTH seem to have no effect on the clinical course, even though laboratory data returned to normal. Where heart failure has occurred and persists despite a salt-free diet, mercurials and digitalization, cortisone has been extremely effective in clearing the congestive failure. This improved clinical status is maintained for long periods of time after cessation of therapy, even though evidence of active rheumatic fever persists.

Treatment of this type of patient is often difficult. Children are more resistive than adults to a salt-free regimen. Digitalis is believed by many to be effective in active rheumatic fever only if auricular fibrillation is present. We have, however, seen adequate digitalization clear congestive failure in children with active rheumatic fever with regular sinus rhythm. Its use should be attempted whenever congestive failure occurs. We prefer Digoxin because of the greater rapidity of ex-

In an extensive clinical investigation conducted by five well qualified physicians, treatment with Cobaden, a unique combination of adenosine-5-monophosphate and cyanocobalamin, "... was successful in terms of pain-relief, restored mobility and diminished swelling and tenderness in 66 of 70 patients... with osteoarthritis, polyarticular pain, polyarthritis, tendinitis (bursitis), musculofasciitis, tenosynovitis, peripheral neuritis (sciatica) and diabetic neuropathy."[1]

1. De Lucia and Strosberg. Med. Times 82:1, p. 47. 1954.

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cretion if toxic effects develop. Gitaligen has been found useful in cases in which digitalis toxicity is marked with other preparations.

The usually effective dose of aspirin is one grain per pound of body weight daily. Cortisone is usually given 300 mg. orally the first day, 200 mg. daily for the next five days, and then 100 mg. a day. ACTH is given as 120 mg. daily, IM q. 6 h. in divided doses initially, then 100 mg. for five days and in decreasing doses thereafter. If these drugs are used, it is believed advisable to continue them for 12 weeks.

The common side effects of adrenocortical therapy are usually unimportant in children with rheumatic fever. Three to four glasses of orange juice daily maintain serum potassium levels. A 12-year-old patient of ours had massive bleeding due to activation of an asymptomatic duodenal ulcer under cortisone therapy.

The patient is generally allowed on his feet as soon as clinical and laboratory evidence of rheumatic activity have disappeared. Where suppression is gained earlier under hormonal therapy, this may be attempted at the 12th week, while the child is still on therapy — in many cases in which clinical manifestations have subsided but the SR still elevated.

A "rebound" phenomenon occurs in a fair percentage of steroid-treated cases; this is a short period of recurrence of joint pains, fever or abnormal laboratory tests shortly after terminating therapy. If this disappears in three to four days, it probably is of no significance; persistence indicates continued rheumatic activity; in which case reinstitution of therapy is indicated.

SUMMARY.

1. The diagnosis and differential diagnosis, prophylaxis and treatment of rheumatic fever are outlined in accord with the experience of the authors.
2. The difficulty in recognition of chronic, active rheumatic fever is emphasized and the diagnostic value of the presence of subcutaneous nodules and erythema marginatum is noted.
3. The non-specificity of the laboratory aids in diagnosis is discussed.
4. The value and technique of a period of careful clinical and laboratory observation in establishing a diagnosis are noted.
5. The methods, duration and results of prophylaxis against infection by Group A Beta hemolytic streptococci are outlined.
6. Methods of treatment including bed-rest, aspirin, the steriod hormones, digitalis, and salt-poor diet in cases of varying severity are outlined.

Site For Vaccination

Site for vaccination of all infants is on the chest 1 in. below the right nipple. This site is protected from accidental injury and can easily be kept clean and dry, the infant appears to suffer the minimum of discomfort, and in the case of females later on the scar is completely hidden by the breast. I have practised this method for over 15 years following a hint in one of the medical journals—I forgot which—and parents, without a single exception, have been delighted with the result.

G.W. Bender, *British Medical Jour*, No. 4846:1158, 1955.

Investigation of the Infertile Couple

Blockage of sperm passage by cervical mucus may be as sterilizing as any other difficulty

HERBERT H. THOMAS, M.D., *Birmingham, Alabama*

Since the introduction of tubal insufflation in the early part of this century, increasing investigation of all phases of sterility has resulted in many important advances, and a well developed routine by which we may elucidate problems of the infertile couple has been worked out.

GENERAL CONSIDERATIONS

Whether he wishes to investigate the couple's problem himself or guide them to someone especially trained in this work is largely for the family doctor to decide. He should insist that the patient's time, efforts, and money be intelligently directed. Many couples have inadequate examinations or go through unnecessary procedures who might have been benefited if a proper study had been made of each member of the infertile pair. Progress in this field has been due to a closer study of the couple as a unit and to increased interest in the problems of fertility as it affects the male. Many who are engaged in general practice are doing creditable work in this field.

Such investigations are not difficult; nor do they require much equipment or time, but insistance is necessary on careful study of each possibility that may be a cause of the infertility. Adequate investigation will uncover many defects that may prevent pregnancy from taking place, some of them difficult, maybe impossible to overcome. Properly

evaluation and treatment of many other defects, may result in a pregnancy. Between 10 and 15% of all married couples are involuntarily sterile.

During the first year of married life 85% of married couples who lend their efforts toward this goal achieve a pregnancy. At the end of two years 95% of those who will achieve a pregnancy unaided will have done so. This leaves a very small percentage who will over the years reach their goal without special aid. Therefore, any couple who has been married for over a year and who has tried to reproduce without success, should be advised to seek medical aid.

At the initial visit, if the husband is present along with the wife, an ideal situation exists for a routine diagnostic sterility survey. This should include explanation for the necessity of the various special tests, when they should be done and the approximate cost of the entire survey.

EXAMINATION OF THE WIFE

The routine investigation—history, physical examination and routine laboratory studies—may well begin with the wife. The history should bring out any abnormal menses, irritating vaginal discharges, any past chronic or serious illnesses, abdominal operations or infections. Marital history should include any previous pregnancies, previous marriages, use of contraceptives and coital practices. Detailed information should be obtained in regard to any previous sterility investigation. A complete general physical examination should be done which included a speculum examination of the cervix and a bimanual examination of the pelvic organs.

EXAMINATION OF THE MALE

Careful study of the male is an important part of the evaluation. Thirty-five to 50% of the difficulties found in most series of carefully studied couples have been traced to the male. Here, also, a complete history, physical examination and routine laboratory work should be done. In the history, particular interest should be centered about past testicular injuries or swellings, mumps, hernia operations, venereal diseases and changes in sexual interest or activity. Included in the physical examination should be inspection of the genitals and a prostatic examination.

USE OF SPECIAL STUDIES

These are designed to aid in investigating the production of sperm in the male, the deposition of sperm in the vagina, the passage of sperm through the cervical mucus, the potency of the fallopian tubes and the status of ovarian function.

The most important special study in the male is evaluation of the semen. This should be carried out according to procedures readily available. Among the best is that described in the pamphlet, "Evaluation of the Barren Marriage," published by the American Society for the Study of Sterility. New values as to what constitutes fertile semen specimens are constantly being set. With our present knowledge, it would be difficult to designate a low count as causing infertility or a high count eliminating the male as the cause of the infertile mating, unless all other semen factors are considered. Several semen specimens are required in many cases before sufficient information is obtained.

Additional information may occasionally be had from examination of prostatic secretions for evidence of infection. Testicular biopsies and urinary hormone determinations are helpful in determining prognosis and

possibilities of treatment where azoospermia is found.

Several special studies are made of the female. By the keeping of a basal termperature chart one attempts to determine if ovulation occurs, to ascertain the time of ovulation, and to time coitus to the expected time of ovulation. If being used at the time a pregnancy occurs, it makes an excellent early pregnancy test available sooner than any other type of test. This test is performed by the patient taking her oral or rectal temperature for five minutes each morning on awakening, then recording this on a prepared chart.

OVARIAN FUNCTION

Endometrial biopsy may be used to evaluate ovarian function, and is valuable where the basal temperature chart is equivocal. This may be done around the 20th-24th day of the cycle or during the first 18 hours of the menstrual period. It furnishes evidence as to whether or not ovulation has occurred and is to some degree a measure of corpus luteum activity.

An important test that is often neglected is the post coital study of the cervical mucus around the time of ovulation. At this time the cervical mucus is abundant, free of pus and penetrable by sperm. This test should be correlated with the findings of the basal temperature chart and repeated several times during the period of ovulation. If the cervical mucus is viscid. contains many pus cells, and does not contain motile sperm at the time of ovulation, endocervical infection must be suspected.

Thread-formation of the cervical mucus and formation of crystal fern-like patterns in dried cervical mucus are maximum at the time of ovulation. These phenomena may be of some aid in fixing the time of ovulation.

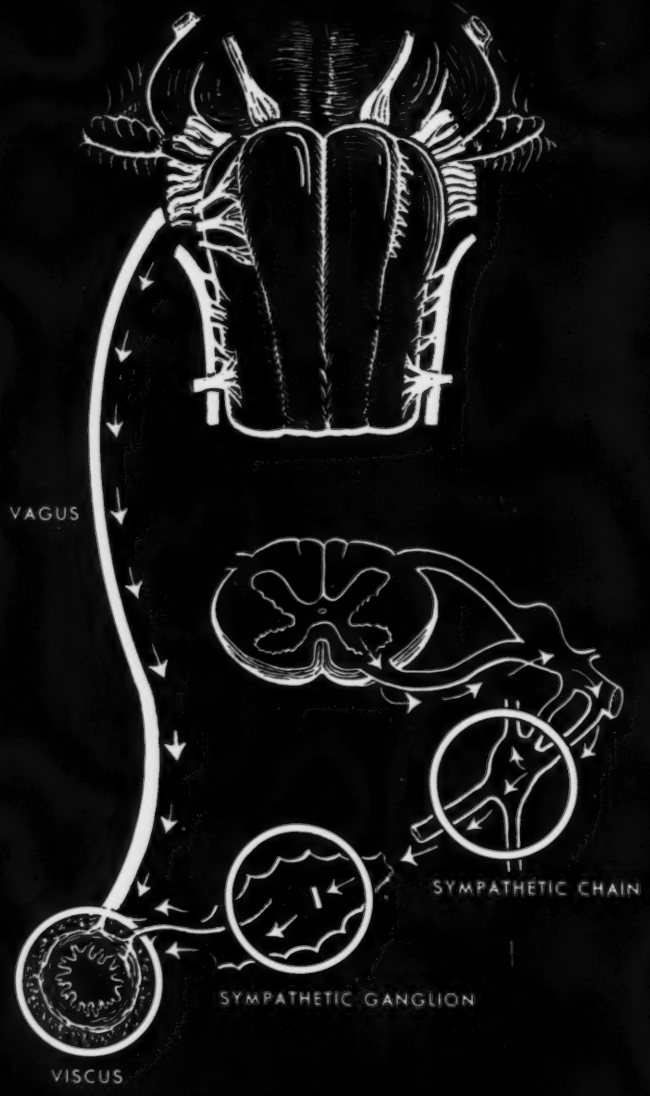
Tubal patency examinations are important from a diagnostic and a therapeutic standpoint. Two types of tubal patency tests are available. The simplest and least expensive is the use of CO_2 gas when proper equipment is available. The end point that reveals if one or both tubes are patent is the pain referred to the shoulders or arms soon after the patient becomes erect. The other type requires the introduction of an opaque medium to outline the uterus and tubes. Very little special equipment is needed other than a cannula and syringe but an x-ray or fluoroscope must be available. Scatter of the opaque medium throughout the pelvis is important to rule out any intra-pelvic adhesions.

Treatment of the infertile couple should begin with improving their morale by having them believe that everything possible will be done to aid their achieving a pregnancy. This is a tremendous help to many a discouraged wife who feels that the baby she wants so badly is denied her.

ADEQUATE EXERCISE

Improvement of the general health of both members of the couple is important. Adequate exercise and sleep, proper food, and reduction of tension are helpful. Excessive smoking and drinking should be cut down and toxic foci such as infected teeth removed.

Thyroid or other hormone products should be used only after careful evaluation of the patients need for them. All too often hormone pills or injections are the only treatment given a patient who comes to a doctor because of her infertility. Too much faith has been put on thyroid therapy, many women being dismissed for several months at a time



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In Roback and Beal's[2] series "Side effects were almost entirely absent in single doses of 30 or 40 mg. . . ."

Pro-Banthine (β-diisopropylaminoethyl xanthene-9-carboxylate methobromide, brand of propantheline bromide) is available in three dosage forms: sugar-coated tablets of 15 mg.; sugar-coated tablets of 15 mg. of Pro-Banthine with 15 mg. of phenobarbital, for use when anxiety and tension are complicating factors; ampuls of 30 mg., for more rapid effects and in instances when oral medication is impractical or impossible.

For the average patient one tablet of Pro-Banthine (15 mg.) with each meal and two tablets (30 mg.) at bedtime will be adequate. G. D. Searle & Co., Research in the Service of Medicine.

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1. Schwartz I. R.; Lehman, E.; Ostrove, R., and Seibel, J. M.: Gastroenterology *25*:416 (Nov.) 1953.
2. Roback, R. A., and Beal, J. M.: Gastroenterology *25*:24 (Sept.) 1953.

to see what effect this medication will have.

Two endocrine products at times are helpful. Methyl testosterone in doses of 5 to 10 mg. daily for several months may aid in handling problems of mild endometriosis. Progesterone during the post-ovulatory phase of the cycle may aid in establishing nidation in an endometrium that otherwise might not have held on to an early pregnancy. These procedures should be used only after the completed sterility survey suggests that trial of these measures may be of aid.

Occasionally, repeated tubal tests may overcome mild obstructions or spasms. Seldom can a patient be helped by a tubal procedure that causes severe pain since reflex tubal spasm may negate any help obtained in removing an obstruction by force.

BLOCKAGE OF SPERM PASSAGE

Of importance is the elimination of chronic cervicitis and vaginitis. As mentioned in describing the post coital tests, the blockage of sperm passage by a hostile cervical mucus can be as sterilizing as any other major difficulty. This can be overcome by cautious treatment of the chronic cervicitis and associated vaginitis.

Where the opaque medium in the tubal patency tests reveals a fuzzy outline of the endometrial cavity or when bleeding problems are present, curettage may remove hyperplastic tissue or polyps that were preventing proper implantation of the pregnancy.

Procedures such as precoital douching, concentration of coitus around ovulation time and the use of a cervical cap to protect semen low in volume or count are of doubtful value.

In a few patients that present complex diagnostic problems such as pelvic adhesions, endometriosis, enlarged ovaries, etc., the use of the culdoscope may be helpful.

Operations for tubal plastic procedures are frequent failures but recently have given considerable promise from improvement in techniques.

Tension may contribute more to the cause of the couple's infertility than credit is given. Adequate exercise, relaxation and avoidance of excessive smoking or drinking should be encouraged.

CHRONIC INFECTION

Any slight suggestion of chronic infection in the male genital tract should be treated adequately. This is frequently overlooked and when treated properly, a pregnancy may rapidly ensue.

Some males with low sperm counts have been helped by the rebound and release phenomena which may occur after suppression of spermatogenesis for three to four months through the use of large doses of intramuscular testosterone.

Many times after completion of a sterility survey there is evidence that some major difficulty exists. This may prove to be difficult or impossible to remove or overcome. In these and in other instances it may be well to suggest that the couple plan for adoption rather than abandon all hope of having a child in their home. It is part of the physicians duty to advise and aid the couple where adoption has been decided on. However, it is also his duty to never give up on a sterility problem as long as there is any hope of helping a couple achieve their heart's desire—a child of their own.

Postpartum Hemorrhage

If uterus is packed and bleeding is controlled, an antibiotic is used prophylactically

PIERCE MACKENZIE, M.D., *Evansville, Indiana*

Prevention, rather than treatment, of postpartum hemorrhage should be the aim. Since we have good analgesic and anesthetic drugs available for the first and second stages of labor, there is little reason why the physician should be hurried into a forceps operation or breech delivery before the cervix is completely dilated and the presenting part at least to the mid-station.

Unless sure of completing a difficult forceps or breech delivery, do no episiotomy before the attempt at delivery. Women have gone into shock from bleeding from an episiotomy wound.

The sun should not set twice on a woman in labor without serious concern on the part of her physician. Ether is the safest anesthetic for the second stage; prolonged, deep ether predisposes to uterine atony postpartum.

In caring for the woman who has had multiple full-term pregnancies, look for a precipitate delivery, slow separation of the placenta, and atony of the uterus—all of these predisposing to hemorrhage. Be on guard also for trouble after the birth of an oversize baby, after twins, and with polydydramnios.

To prevent postpartum hemorrhage one should have immediately available sterile hypodermic syringes and the proper needles, pitocin or pituitrin, methergine or ergotrate, IV saline solution, saline-glucose solutions, and plasma. Where hospitals have blood banks, a pint of O type-Rh negative blood should

be kept in the ice box on the obstetrical floor. Oxygen should be available by mask for shock. A 10-yard gauze pack, either iodoform or to be used with such a solution as acriflavin 1-1000, should be ready in a sterile jar.

Care of the Ordinary Case of Labor—The nurse has ready in one syringe, 1 unit of pitocin in 1 c.c. of saline solution, in a second syringe is 1 ampoule of methergine, which is preferred to ergotrate. As soon as the baby's chin is born the nurse gives the 1 unit of pitocin *IV*. Baby should be delivered slowly—patient delivery of the head, 1 min. for the shoulders, 1 min. for the body. As soon as the head is born, blood and mucus are wiped from the face; when the shoulders are born the throat is sucked clear with a bulb syringe. If no one is available to give the pitocin *IV*, 1 c.c. of pitocin (10 units) *IM* as soon as the first shoulder is born. With a breech extraction 1 unit of pitocin *IV* as soon as the Piper forceps are properly applied for delivery of the head.

DELIVERY OF PLACENTA

Deliver a placenta, which has properly separated, by gentle traction on the cord with one hand and by elevating the uterus into the abdomen or by gentle fundal pressure with the other hand. As soon as placenta delivered, 1 c.c. of methergine *IV*. Placenta and membranes carefully examined for evidence of retained portions. If there is any doubt about this, the inside of the uterus is explored without delay.

The placenta out completely, if the uterus relaxes and bleeds easily after the methergine is given, a full c.c. of pitocin (10 units) given *IM* to hurry up the muscular contractions while waiting for the more slowly acting methergine. If some minutes delay before the placenta is ready for delivery, the baby is cared for, the cervix, vagina, and episiotomy are inspected to plan, or start, the necessary repairs. The fundus of the uterus is noted by palpation only. The Credé method is not used. So long as the uterus does not bleed it is not bothered except to frequently feel to see that it does not relax and bleed, and to determine the earliest time the placenta is ready for delivery. When no repair is needed and if no blood is being lost, there need be no hurry to deliver the placenta; 98% will separate spontaneously and can be delivered within 8 to 10 min. When an ergot preparation has been given before the placenta is expelled from the uterus it may be necessary to wait a while for the uterus to relax.

OOZING OF BLOOD

If there is a steady oozing of blood to indicate partial placental separation and 200 c.c. to 300 c.c. of blood loss, the placenta is delivered manually. Where one has made an episiotomy or there are cervical, vaginal, and perineal tears to repair, no reason to wait longer than 20 min. to deliver the placenta manually if the cervix is relaxed enough to do it. Occasionally some general anesthesia is necessary.

The doctor should get no farther than an arm's length from a patient who still has a placenta in her uterus. The placenta should be removed in one piece if possible and the uterus re-examined to be sure no fragments remain. A uterine pack is rarely needed. An empty uterus seldom bleeds if oxytocics are properly used. A pack keeps the uterus from properly contracting and shutting off its blood vessels. A 10-yard, 3 in. wide pack in a poorly-contracting, bleeding uterus may absorb 1000 c.c. of blood and give a false sense of security. A second pack cannot be expected to be better than the first. A pack may help stop oozing from

a low-lying placental site after delivery or from multiple tears of the cervix or vagina.

If a uterus is packed, it should be filled from the fundus and the vagina also packed so that the uterus may be compressed upon the pack through the abdominal wall if necessary. If one uses a pack and the bleeding is controlled, it is wise to use antibiotics prophylactically. In the grand-multipara with atony and hemorrhage, one hand in the uterus or in the vagina and one compressing the uterus from the outside, 1 c.c. of pitocin directly into the uterine muscle through the abdominal wall. For a persistently bleeding uterus due to atony, a hysterectomy may be rarely necessary, or for uterine rupture, after an abruptio placentae, uterine fibromyoma, or placenta accreta.

Become alert if 300 c.c. of blood are lost, and waste no time in stopping it. The tendency is to underestimate blood loss and be surprised at signs of shock.

A patient markedly anemic before delivery, a grand-multipara, any bleeding of undetermined cause or from a marginal placenta previa or abruptio placentae, and the physician has decided to deliver by the vaginal route, blood should be available before delivery is started; 1000 c.c. of saline solution should be running into one arm at least, with not less than an 18-gauge needle, so that blood can be added without delay. Whether blood is needed or not, the saline-solution with an added 1 c.c. (10 units) of pitocin can be continued in the patient's room. One or both arms can be used for blood if necessary.

If not present, be available for at least 1 h. after newly delivered mother returns to her room. A nurse should carefully watch the pulse, the b.p., the fundus, the perineum for hematoma formation, and the amount and character of the visible bleeding. Bright red bleeding with a steady firm uterus likely means bleeding from tears; dark bleeding with intermittent clots and softening fundus means uterine bleeding. Careful repair of cervical and vaginal tears is essential to prevent postpartum hematomas.

Instruct the nurse to press on the fundus to expel any clots, but not to massage the uterus so long as the fundus is firm. Standing order to repeat pitocin or an ergot preparation as indicated. Have one nurse rather than several responsible for the watching of a patient during the immediate postpartum period.

Pierce MacKenzie, Jour. Indiana State Med. Asso., 46:1158, Nov., 1953.

Trichlorethylene in Office and Hospital

Trichlorethylene is a potent analgesic and a safe one if used according to recommendations. These are the avoidance of epinephrine; and self-administration by the patient, with the inhaler set to no higher than the half-way mark. If these rules are followed, trichlorethylene will prove a boon, not only to the urologist, but also to his grateful patient. There are some patients who cannot be examined cystoscopically, under the influence of this drug. However, it can be confidently stated that trichlorethylene, when properly used, can provide more analgesia than any other agent presently available, without producing unconsciousness.

F.G. Horne, *Sou. Med.* Jl, 47:515, 1954.

Clinical Uses of Different Antibiotics

Tetracyclines are highly effective against infections with varieties of gram-positive and gram-negative bacteria

MAXWELL FINLAND, *London, England*

Penicillin is still the most effective and least toxic agent available for the treatment of most infections due to organisms which are sensitive to it in vitro. Some of its usefulness, however, has been reduced by excessive and unnecessary widespread usage over the past few years, which has resulted in the sensitization of large numbers of individuals and, in the case of the Staphylococcus, by the gradual elimination of sensitive strains.

There has been no significant change in the effectiveness of penicillin in the treatment of syphilis since the use of purified crystalline penicillin G was standardized. In subacute bacterial endocarditis, it is possible that some decrease in efficacy of penicillin is responsible for the present need for large doses. The widespread use of penicillin may have resulted in a general, though not so marked, reduction in the sensitivitiy of strains of the viridans group of streptococci, which are so universally present as part of the normal flora of the mouth and which are also the major cause of this disease.

Oral penicillin in the buffered tablets of the sodium or potassium salts is only 10 to 30% efficient, so that from 3 to 10 times the IM dose is necessary to achieve the same therapeutic effect, and in sick patients suffering from severe infections in which large doses are required, it is often difficult to administer, and, in addition, may also entail GI disturbances similar to those encoun-

tered with other antibiotics.

The intermittent IM injection of the aqueous sodium or potassium salts is preferable to the repository preparation for the treatment of deep and walled-off foci of infection. Repository forms may be useful even for deep foci of infection, whenever the organisms are sufficiently sensitive and there is adequate access to tissue fluids, as may be the case in syphilitic or haemolytic streptococcal infections.

TUBERCULOSIS TREATMENT

Streptomycin remains the choice in the treatment of tuberculosis, and two important features have led to an increase in its systemic use in many non-tuberculous infections. One is the use of smaller doses (1 or 2 g. a day) and shorter courses which minimize the major toxic effects on the 8th nerve; the other is the use of streptomycin in combination with other agents, particularly with large doses of penicillin, which has resulted in an increase in its effectiveness against resistant Gram-positive organisms, coupled with a reduction in the rate and degree of emergence of streptomycin-resistant variants. The latter usage is best typified in the treatment of bacterial endocarditis due to organisms which are only slightly sensitive to either penicillin or streptomycin separately. Avoid the use of streptomycin alone in such cases, lest resistant variants emerge rapidly during the use and subsequenlty interfere with the success of the combined therapy.

The rapid bactericidal action of streptomycin has been most helpful in the early acute stage of severe infections with Gram-negative bacilli, particularly in Friedlander's pneumonia, although the character of the necrotizing lesion in the latter has militated against its continued effectiveness and against its success in completely eliminating the organisms. Resort must then be had to other antibiotics. Streptomycin is still useful, either alone or with other antimicrobial agents, in the treatment of meningitis, infections of the urinary tract, and other severe infections with susceptible organisms; also, used with penicillin and/or sulphonamides, it still has an important place in the prevention and treatment of generalized peritonitis. The importance of alkalinization of the urine in enhancing the effectiveness of streptomycin in the treatment of urinary-tract infections is emphasized.

Dihydrostreptomycin tends to produce a predominantly auditory-nerve damage which may be delayed in onset and usually is irreversible; streptomycin, on the other hand, gives rise predominantly to vestibular dysfunction, which may be recognized early, and at that stage if the treatment has stopped, may be reversible. No difference has been demonstrated in the clinical activity of these two forms.

Aureomycin and Terramycin it is appropriate to consider together and to include tetracycline. Observations in our laboratory and clinic would point to a very close similarity in the antibacterial action of these three. The clinical differences appear to be related primarily to the lower toxicity of tetracycline.

ACTIVITY

There is a difference in activity of Aureomycin and Terramycin in individual patients, and there may also prove to be such a difference in occasional patients or infections with respect to tetracycline, and either or both of the other chemically related substances. Data thus far available would indicate that the use of tetracycline causes less GI symptoms than Aureomycin in comparable doses and in similar patients. Terramycin has regularly produced

more GI symptoms than Aureomycin, particularly the diarrhoeas associated with displacement of the fecal flora by resistant staphylococci.

The tetracycline antibiotics are still highly effective against infections with a wide variety of Gram-positive and Gram-negative bacteria, including many types of bacterial meningitis. IV aureomycin is the most effective single antimicrobial agent in the treatment of acute diffuse peritonitis; has striking efficacy in the peritonitis due to Salmonella typhosa.

RICKETTSIAL INFECTIONS

The tetracyclines are highly effective against all rickettsial infections. No proof of the effectiveness of these agents is uncomplicated viral infections. As to the efficacy of Aureomycin in the treatment of cases of primary atypical pneumonia of the type associated with cold agglutinins, doubts have been raised.

Chloramphenicol's clinical activity overlaps most of the range of infections favorably influenced by the tetracyclines, though less effective against infections with Gram-positive organisms, more effective against some of the Gram-negative bacillus infections. It is also about as effective as the tetracyclines in rickettsial infections. Chloramphenicol is highly effective in Haemophilus influenzae meningitis, and has recently proved to be highly useful in the treatment of serious infections due to staphylococci that are resistant to penicillin and to the tetracyclines. It is the agent of choice in typhoid fever.

Because of the severe and fatal bone marrow depressions which have been attributed to this agent, it should not be used for minor indications, for prophylaxis, or where any risk at all would be difficult to justify. In the treatment of those serious infections for which chloramphenicol is clearly indicated there is no reason to hesitate to use it. Frequent blood counts during an initial treatment can hardly be of value, since blood would show little change until some time after treatment is discontinued. Initial counts, however, are significant in order to rule out antecedent blood dyscrasias.

The antimicrobial spectra of erythromycin and carbomycin appear to be almost identical qualitatively, but against most of the susceptible strains erythromycin appears to be more active. The spectra of both agents resemble closely that of penicillin, they are said to be active also against rickettsias and against the psittacosis-lymphogranuloma venereum group of organisms.

ORAL ADMINISTRATION

Oral administration of erythromycin, especially with alkali, yields rather high concentrations in blood and urine.

Erythromycin is less effective than penicillin against most infections with Gram-positive organisms, much less effective against gonococcal infections. Its major usefulness is in staphylococcal infections, particularly those resistant to penicillin, aureomycin, and terramycin.

Reports indicate carbomycin may be effective in the treatment of amebiasis and in granuloma inguinale.

Bacitracin, polymyxin and neomycin are grouped together because their inherent toxicity when they are used parenterally has greatly limited their use in systemic diseases. Each, however, has been successfully used by the IM route in important and serious infections when others have failed.

Bacitracin has proved particularly useful, alone or with penicillin or other antibiotics, in the treatment of a few cases of bacterial endocarditis and in other cases due to Gram-posi-

tive organisms resistant to other antibiotics. Occasional successes have also been reported in meningitis and brain abscess due to similar organisms; in these conditions it is said to be devoid of local irritation, thus permitting topical application, and its use intratecally, intraventricularly, and into brain abscesses. The local irritation from IM injection may be quite marked, but this is minimized by including procaine with the diluent and by limiting individual injections to 25,000 units or less. The nephrotoxicity of bacitracin, inherently related to its activity, is generally transient; it has also been limited chiefly by keeping the average daily dose in adults down to 100,000 units or less, maintaining the urine at neutral or slightly alkaline, and avoiding systemic treatment or using it with great caution in patients who already have reduced renal function.

Polymyxin B has found special uses, locally and systemically, in the treatment of infections with strains of Pseudomonas and other Gram-negative bacilli resistant to other treatment. As with bacitracin the nephrotoxicity has been either avoided or transient, or kept at a minimum by proper dosage, and in children the drug has not been much of a problem when properly used as polymyxin B and polymyxin E. The paraesthesias are still prominent feature of treatment in adults, but do not seem to be very important in infants and children.

Neomycin is probably the most toxic of these agents when used systemically, producing renal and auditory damage with frequency and severity. The toxicity is minor when the dose is kept at 1 g. a day and given for brief periods.

The major uses of bacitracin and also of polymyxin and neomycin are their local application in the treatment of infected wounds and dermatological lesions. Each of these three is very poorly absorbed from the GI tract. Advantage is taken of this property for their use in reducing the bowel flora.

British Medical Jour. 4846:1115, 1953.

Migraine and Migraine-Tension Headache

This condition is frequently associated with menstrual periods and usually diminishes after the menopause

G. A. PETERS, M.D., *Rochester, Minnesota*

Migraine is a disorder with a hereditary tendency, which afflicts 10% of the population. Its typical form is easy to diagnose but its atypical forms can be confusing. We will emphasize a common atypical variety the "migraine-tension headache" which is due to dilation, with fuller pulsation and altered sensitivity of the cranial vessels.

Migranious persons are usually intelligent, sensitive, ambitious and reliable. If a woman, she is bright and trim with a sparkle in her eye. If a housewife, she leaves no dishes in the sink.

Migraine attacks 2 females for 1 male, may begin as early as 6 years of age and continue beyond 60 years. It is frequently associated with menstrual periods and usually diminishes after the menopause; it may begin at this time or even be accentuated.

Migraine can be diagnosed by the (1) periodicity and recurrence, (2) positive family history, (3) cortical phenomena, (4) GI disturbance, (5) unilateral nature as well as shifting location of pain in the head, and (6) positive response to ergotamine products.

Typical migraine has 3 vascular phases (1) vasoconstriction, (2) vasodilation and (3) edema. (1) Scotoma, hemianopsia, paralysis, diplopia, paresthesia, and asphasia may occur, and last not more than ½ hour. No headache.

(2) Headache with nausea, vomiting and diarrhea, dizziness, fever, sweating, palpitation, excessive urination, may occur. A pounding or throbbing headache which stoop-

ing, shaking of the head, or bodily jars will aggravate. Bright sunlight, cooking odors and loud noises may be intolerable. The pain is usually unilateral but may become bilateral. The frontal, temporal and occipital regions are commonly affected, although the pain may be periorbital or in the maxillary region—usually follows the branches of the external carotid artery. Compression of the involved throbbing vessels usually gives temporary relief. Also vasoconstricting drugs, such as dihydroergotamine (DHE-45) *IV*, in doses of 1 c.c., frequently gives prompt relief although nausea and vomiting may occur.

EDEMA

(3) the stage of edema is seldom seen—swollen, hard and tender extracranial vessels on same side as the headache. During this phase vasoconstrictive agents aggravate the pain by inducing the edematous, tender vascular walls to contract.

The end stage of migraine is one of exhaustion. Between attacks the patient may feel so well that recurrence seems impossible.

Laboratory tests including x-ray of the head and cervical vertebrae may be necessary to exclude organic causes of headache. The history is most important.

Between headaches but migraine suspected, a typical vasodilating headache may be induced with nitroglycerin, 1/50 grain sublingually, or histamine base 0.35 mg. subcut. This is not to be confused with the immediate headache which will follow the use of nitrites or histamine, in which there is throbbing of short duration. The attack which the patient calls "typical" occurs usually an hour after the provocative agent has been given and usually after the "histamine" or the "nitrite" headache has subsided.

We found the 2 agents equally effective in provoking "histaminic cephalgia," nitroglycerin more effective in proving migraine. The combined use of nitroglycerin and histamine gave a higher rate of positive response than use of either agent alone. Each test was carried out with the patient lying down and in a fasting state, b.p. and pulse rates were taken frequently.

Many of the patients tested became quite ill from headache, nausea and vomiting and several hours were required for recovery. Usually 1 c.c. of DHE-45 *IV* plus 100% O_2 terminated the attacks.

Provocative tests are helpful because the patient has confidence in the physician who is able to bring on a typical headache, and even more if he also is able to stop it.

In some the eating of chocolate, nuts, raw onions, pork, eggs, milk, or wheat products, will set off attacks. Foods are not as important as some writers state. Skin tests are not reliable for the detection of food sensitivity. Ingestion of the suspected food is the better test.

EMOTIONAL STIMULATION

As a result of emotional stimulation or conflict, tension headache—a pain in the head arising from conditions caused by the tension state—may be throbbing, usually dull, may be intermittent or persistent, usually bilateral, no vomiting. May last from early morning to bedtime for days at a time, or may be present at intervals every day.

Between the extremes of typical migraine and typical tension headaches, there are all degrees of combinations of migraine-tension headaches. Many migranious patients say, "I have two kinds of headache" and will describe the dull, constant, daily generalized headache of tension type and a more severe type

which comes perhaps once or twice a week or month, which is throbbing, unilateral (although it can be bilateral), and associated with nausea, photophobia and perhaps vomiting. This latter vasodilating headache is an atypical migraine which is easily missed, having been obscured by the more prominent tension headache. The patient having a typical tension headache does not appear to be in great distress and is quite willing to discuss his headache problem freely. The patient in an attack of migraine wants to be left alone.

Brain tumor, subarachnoid hemorrhage, cerebral aneurysm and various types of neuralgia must be excluded. Brain tumors can arise in migranious individuals. A short history of headache with progression of symptoms should arouse suspicions of some intracranial lesion. Infections of the sinuses, allergic conditions of the nose, as well as systemic diseases with fever should be ruled out.

HISTAMINIC CEPHALGIA

Horton's histaminic cephalgia can be identified by the explosiveness and short duration of the headache (rarely exceeds 1½ hours), usually occurs 1 to 2 hours after retiring. Tearing and reddening of the eye, rhinorrhea, nasal congestion and flushing of the face on the side of the headache. The pain is very severe, usually is retro-orbital, boring, always unilateral, responds to ergotamine tartrate or derivatives.

Temporal arteritis is rare before 50, usually presents hardened, tender temporal vessels, maybe impairment in vision due to involvement of the retinal artery; also fever, leukocytosis, and sometimes an intermittent pain in the muscles of mastication on chewing.

In the early stage of vasoconstriction nicotinic acid 100 to 200 mg. by mouth, the inhalation of 10% CO_2 with 90% O_2 if not effectual in several short trials, may abolish the visual disturbance and keep the headache from coming on. Once headache begins vasodilators are likely to aggravate.

VASOCONSTRICTING DRUGS

In the second stage, most important are the vasoconstricting drugs. Remember many get relief from aspirin or rest alone, very cold or painfully hot compresses. Those who keep on working find their headaches prolonged. An attack of migraine can be likened to a fire. If one acts quickly, one can extinguish a fire easily, but if one acts too late, several fire trucks may be insufficient.

One of the best oral vasoconstrictors is a tablet of 100 mg. caffeine alkaloid and 1 mg. ergotamine tartrate—"Cafergot." Nausea, vomiting, abdominal or leg cramps and insomnia may obviate its use. One to 2 tablets every ½ hour for 2 or 3 doses; dosage reduced and an analgesic as aspirin compound, combined with it. Daily or frequent use of any ergotamine preparation is to be avoided.

For patients who have severer attacks, dihydroergotamine is more effective *IV*. It is less toxic than ergotamine tartrate (gynergen) and is said not to have oxytocic effects. Ergotamine tartrate subcut. can be relied on even though used repeatedly for many years. However, this drug is not for daily use. The parenteral use of ergotamine tartrate or dihydroergotamine, or oral use of cafergot, should be limited to not more than twice a week. Rectal suppositories (EC-112), containing the same ingredients as cafergot except for a larger amount of ergotamine tartrate, have been used with success.

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In the stage of edema hypertonic solution of glucose *IV* may help. During this phase judicious use of sedatives and other supportive measures to promote rest and sleep is desirable.

Treatment of the tension state associated with most migraine problems is easier said than done. An explanation of headache mechanisms in simple terms is helpful. Problems at home and business, personal, domestic, and social often will shed light on possible sources of friction, anxiety and worry. Patients who have migraine as well as tension headaches must be taught the value of adequate rest and relaxation for each day, how to balance their lives with regard to love, play, work and religion, get 8 to 10 hours of rest at night and rest during the middle of the day if indicated. Overactivity in social, church and civic affairs must be curtailed.

For tension headaches a barbiturate and aspirin is about as effective as any type of drug.

Proc. Staff Meet. Mayo Clinic, 28: 673, 1953.

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(B) "(Salicylamide) has an anti-rheumatic, analgesic and antipyretic effectiveness . . . hardly approached by the other salicylic acid compounds."[3] (For similar evaluations see[4, 7, 19, 20].)

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DOSAGE: For adults and children over 6 years of age: 2 **CAUSALIN** tablets every 4 hours until pain is relieved. Then 1 tablet every 4 hours.

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BOOK REVIEWS

PRACTICAL CLINICAL CHEMISTRY: A Guide For Technicians, by Alma Hiller, Ph.D., Associate Attending Biochemist in Charge of Clinical Chemistry, The Presbyterian Hospital of the Ctiy of Chicago; Associate Professor of Biological Chemistry, University of Illinois College of Medicine. Charles C. Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill. 1953. $6.50

This book appears to be a reliable setting forth of the subject of practical clinical chemistry, in a small compass, and at a reasonable price.

ABSTRACTS ON MILITARY AND AVIATION OPHTHALMOLOGY AND VISUAL SCIENCES, by Conrad Berens, M.D., F.A.C.S., Professor of Clinical Ophthalmology, New York University; Executive Ophthalmic Surgeon, Pathologist and Director of Research, New York Eye & Ear Infirmary; Consultant in Ophthalmology to the Surgeon General, United States Air Force; and L. Benjamin Sheppard, M.D., Assistant Professor of Ophthalmology, Medical College of Virginia, Richmond. The Biological Sciences Foundation, Ltd., Washington 7, D. C. 1953. In 2 Vol. $20.00 per Vol.

This reviewer is so little conversant with this subject matter that he had best confine himself here to quoting extracts from authorities in position to express critical opinion.

Says William R. Stovall, M.D., Chief, Medical Division, Civil Aeronautics Administration: "This is an authoritative and historical reference on ophthalmology as applied to aviation which provides a long-needed source of readily available clinical and research information. The broad scope of this work and the systematic plan of presentation make these data of inestimable value, not alone to those limiting their work to aviation medicine, but also to those physicians who combine the practice of another specialty or general medicine with their work in the field of aviation medicine."

Says R. W. Bliss, Major General, USA (MC) Ret., formerly The Surgeon General, USA:

The constant rapid changes in warfare, improvements in the airplane, and its increased speed have required constant vigilance on the part of engineers, physicians, and military personnel, as well as civilian authorities entrusted with the welfare and efficiency of our military forces. A reference work of this type is an aid to all interested in the visual sciences and military and aviation ophthalmology, whether in a laboratory, operating room, camp, airfield, battleship, or submarine."

SCIENCE AND MAN'S BEHAVIOR: The Contribution of Phyloviology, by Trigant Burrow, M.D., Ph.D., edited by William E. Galt, Ph.D., including the complete text of THE NEUROSIS OF MAN. Philosophical Library, Inc., 15 East 40th St., New York 16, N. Y. 1953. $6.00

The foreword tells us that the author's training has been in the field of medicine, biology and experimental psychology, and that after receiving degrees in medicine and psychology the author became in-

terested in the psychoanalytic techniques which were developed abroad. There he went for study with Carl Jung, after which he returned to Baltimore where he has played an important role in developing psychoanalysis in this country. In the opinion of this reviewer, this book derives special value from the fact that the author was much more influenced by Jung than by Freud. The book is also to be commended for being written in the King's English with a minimum of the jargon of the psychiatrist.

AN INTRODUCTION TO ELECTRONICS FOR PHYSIOLOGICAL WORKERS, by I. C. Whitfield, B.Sc., Ph.D., Lecturer in Physiology, University of Birmingham. MacMillan & Company, Ltd., New York and London. 1953. $3.50

The author has attempted to fill the gap between the elementary textbooks of radio and the more advanced works dealing with specific application of electronics to biological research. As he says, this is not a book for those who hope in an idle hour to pick up something about electronics, but one aimed to provide an introduction to the subject for those graduate students and others who wish to use electrophysiological technics with some understanding.

THERAPEUTIC TRENDS

Modern Concepts in the Treatment of Otitis Media

Perhaps the commonest error in the therapy of otitis media is undertreatment with antibiotics without myringotomy. This may lead to a temporary suppression of the bacterial infection with subsidence of the acute symptoms of otalgia and fever, followed shortly by a more severe and hazardous recurrence. Undertreatment may also lead to superinfection, often by organisms that were considered nonpathogenic in the days before antibiotic therapy.

Zonderman, B., *New England Jl. of Med.* 249: 643, 1953.

Carotid Sinus Syndrome

Treatment depends on severity of symptoms and type of response to carotid sinus massage. Milder cases require only reassurance plus instructions to avoid tight collars and quick side to side movements of the head and neck, and mild sedation. Treatment for more severe cases depends on whether bradycardia or hypotension occur. In event of the former, atropine gr. 1/120, t.i.d. (trial dose). If hypotension, ephedrine ¼-½ gr. t.i.d. In severe cases with convulsions, a trial of anticonvulsives is warranted.

If attacks persist despite medical treatment of it the syncopal response predominates, and attacks are frequent and severe, and if the reflex can be abolished by novocaine block, surgical intervention is warranted. Best results from surgery are obtained in those cases which develop unconsciousness and convulsions on short and slight stimulation of the carotid sinus. The operation consists of exposing the carotid at the bifurcation and stripping the common, external, and internal carotid for 2 cm.

E.M. Burns, *Northwest Med.* 53:247, 1954.

Dangers of Folic Acid

The literature on the results of treatment of cases of Addisonian anemia with folic acid was reviewed in 1948 and 1949. These two authors concluded that folic acid had no place in the treatment of pernicious anemia.

In 1950 Schwartz et al reported 72 cases followed for 3½ years and treated with 5 mg. of folic acid daily: 23 cases developed cord degeneration, in 23 the red cell count and marrow showed relapse, and in 9 cases both occurred. Subacute combined degeneration of the cord has been reported as occurring with doses varying between 5 and 25 mg. daily.

A case is described in which a proprietary preparation of iron containing folic acid was given to a patient with an anemia which had not been accurately diagnosed. The patient was suffering from Addisonian anaemia. Deceptive improvement in the blood condition occurred, but was accompanied by the rapid development of combined degeneration of the cord.

C.P. Lowther, M.D., *British Med. Jl*, 4861:564, 1954.

New Form of Drug Therapy for Arthritis and Rheumatoid Conditions

In a series of 200 cases* of arthritic and myositic conditions, acute and chronic, associated with pain and skeletal muscle spasms, Salimeph-C** gave excellent results. The drug is a combination of salicylamide for analgesia, mephenesin for relaxation of skeletal muscle spasm, and ascorbic acid for nutritional supplementation. It is safe and is reasonable in cost. It can be used in any age group, alone or adjunctively. There are no contraindications other than allergies due to its component drugs. Side effects were minimal (giddiness in 2 patients), and administration did not have to be discontinued in any case because of intolerance. The drug can be administered orally over prolonged periods and is not habit-forming.

Although Salimeph-C does not cure arthritis and rheumatoid conditions, it does relieve pain and spasm. Therefore, it should be extremely valuable in the treatment of the many who suffer from these conditions.

A.L. Natenshon, M.D., *Wisc. Med. Jl*, 53:223, 1954.

Treatment of Hypertension

In hypertension the heart is overworked because the left ventricle must produce a pressure in itself greater than aortic *diastolic* pressure before any blood can be discharged. Overweight increases the work of the heart. An obese hypertensive patient should be placed upon a diet which would result in a progressive loss of weight until normal levels are reached. A spectacular decrease in blood pressure often follows this procedure.

Increased peripheral resistance is the most important etiological factor in essential hypertension.

Treatment of any case of essential hypertension: (1) Place on a low-maintenance diet to reduce the weight; (2) probe the history for psychogenic factors which might cause an anxiety state; (3) make a careful examination of the kidneys to eliminate kidney disease as a factor, and (4) make a very careful examination of the endocrine system, particularly the pituitary-adrenal system.

Work now in progress indicates that under certain conditions, both fat and carbohydrates elevate blood pressure, while protein tends to counteract this effect, and to have a lowering effect upon blood pressure. Both fat and carbohydrates cause obesity. Diet in hypertension should be high in protein, low in fat, and moderate in carbohydrate.

C.M. Wilhelmj, *Nebraska S. Med. Jl*, 39:49, 1954.

Treatment of Warts With Methionine

A man, 30 years old, was treated for hepatic disorders. Among other drugs he was given methionine in a dose of 2 Gm. daily. After treatment for 4 days, many warts on his hands became smaller and smaller and 8 days after starting treatment with methionine all of the warts had disappeared completely. He stated that he had tried many forms of treatment without success. This may have been a coincidence or a real treatment but at any rate he no longer had any warts.

A young man had very unsightly warts on his hands. He was told to try methionine and in a week all of the warts had disappeared.

Recently a nun asked if there was any treatment for warts. She had tried everything and was very discouraged. She was given 1 Gm. of methionine daily and there were no traces of the warts 8 days later.

T.P. Merklen, *La presse medicale*, 62:8, 1954.

LITERATURE SERVICE

Arrangements have been made to forward you the most recent literature available on the conditions listed below. Please indicate on the yellow self-mailer the information you desire by circling the appropriate number.

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1 allergic reactions
2 asthma
3 asthma (bronchial)
4 drug sensitivities
5 eczema
6 food
7 hay fever
8 urticaria

Blood, Cardiovascular

9 anemia
10 anemia (pernicious)
11 anticoagulant
12 arteriosclerotic peripheral vascular disease
13 angina pectoris
14 Buerger's disease
15 cardiovascular disorders
16 congestive heart failure
17 cardiac asthma
18 coronary arteriosclerosis
19 coronary thrombosis
20 chronic trenchfoot
21 dietetic restriction
22 hypertension
23 myocardial failure
24 myocardial insufficiency
25 peripheral neuritis
26 Raynaud's disease
27 thromboangiitis obliterans
28 varicose veins

Dermatology

29 acne
30 athlete's foot
31 bacterial dermatologic condition
32 bed sores
33 burns
34 dermatoses
35 eczema
36 external ulcers
37 fungus diseases
38 infections
39 ivy dermatitis
40 pruritus
41 topical infections
42 yaws

Endocrinology

43 adrenal gland
44 cretinism
45 diabetes
46 exophthalmic goiter
47 Graves' disease
48 hyperthyroidism
49 myxedema
50 pituitary gland
51 thyroid gland
52 thyrotoxicosis

Eye, Ear, Respiratory

53 bronchitis
54 choroiditis
55 coughing
56 eye infections
57 ear infections
58 iritis
59 keratitis
60 laryngitis
61 nasal congestion
62 night blindness
63 otologic dermatosis
64 pharyngitis
65 respiratory infections
66 sympathetic ophthalmia
67 sinusitis
68 tonsillitis
69 uveitis
70 vasomotor rhinitis

Gastrointestinal, Liver and Spleen

71 amebiasis
72 colitis
73 constipation (chronic)
74 cirrhosis of liver
75 constipation
76 diarrhea
77 gallbladder and bile ducts
78 gastrointestinal spasm (functional)
79 gastroduodenal bleeding
80 peptic ulcer
81 staphylococcic infections
82 streptococcic infections

Genito-Urinary

83 bladder diseases
84 cystitis
85 kidney diseases
86 prostate gland
87 pyelitis
88 ureteral diseases
89 urinary tract infections
90 urethral diseases

Geriatrics

91 anemia
92 arteriosclerosis
93 cardiac edema
94 chronic fatigue
95 climacteric (male)
96 constipation
97 insomnia
98 low blood sugar level
99 protein deficiency
100 senility (male)
101 senility (female)
102 vitamin deficiencies

Gynecology and Obstetrics

103 amenorrhea
104 cervicitis
105 climacteric (female)
106 conception control
107 dysmenorrhea
108 vaginitis
109 habitual abortion
110 leukoplakia (vulvar)
111 leukorrhea
112 menopause
113 menometrorrhagia
114 pregnancy tests
115 premenstrual disorders
116 postpartum bleeding
117 pregnancy (nausea & vomiting)

Infectious Diseases

118 brucellosis
119 pneumonia
120 Rocky Mountain spotted fever
121 tuberculosis

Neuromuscular

122 analgesia
123 joint and muscle pain
124 muscle dysfunction
125 muscle spasm
126 multiple sclerosis
127 neuralgia ischiatica
128 neuritis, diabetic
129 osseous and neuromuscular disturbances
130 Parkinsonism

Nutrition

131 anemia
132 avitaminoses
133 impaired fat metabolism
134 malnutrition
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137 multi-vitamin deficiences
138 pellagra
139 protein deficiency
140 vitamin deficiencies
141 multiple deficiences

Pediatrics

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143 diarrhea
144 diaper dermatitis
145 ear infections
146 formulas
147 infantile eczema, nutritional needs
148 scurvy

Rheumatic and Arthritic Diseases

149 arthritis
150 bursitis
151 gout
152 gouty arthritis
153 musculoskeletal pain
154 rheumatic disease
155 rheumatic fever
156 rheumatoid arthritis

Miscellaneous

157 alcoholism
158 barbiturate poisoning
159 debridement of necrotic tissue
160 edema
161 edema (salt retention)
162 industrial dermatoses
163 meningingitis
164 insomnia
165 nervous tension
166 psychoses

AIDS IN DIAGNOSIS

The Diagnosis of Bacterial Endocarditis

Acute bacterial endocarditis is caused by a virulent pyogenic organism and ends fatally in less than 6 weeks if untreated. *Subacute* cases are caused by non-hemolytic streptococci in 95% of cases, almost invariably involve patients with congenital or rheumatic heart disease and may last for months. Now that antibiotic therapy has profoundly altered the prospect it is important to designate cases by the infecting organism.

The early symptoms are commonly only those associated with fever and labeled "flu" by the patient. These may be the sole complaint for several weeks. Others present themselves because of congestive failure or peripheral or pulmonary emboli. Occasionally other causes for fever are found and further search abandoned.

Precipitating factors should always be searched for although in the majority of cases they will remain unknown.

Suspect bacterial endocarditis in any cases with cardiac murmur and persistent fever; in an occasional case there is no fever or rectal temp. are necessary to demonstrate it. The sine qua non of diagnosis is a positive blood culture. It is suggested that 6 blood cultures can be taken at hourly intervals.

Often the chief problem in diagnosis involves active rheumatic fever, since fever, heart murmurs, congestive failure, systemic or pulmonary emboli, splenomegaly, arthralgia, anemia, albuminuria, leucocytosis, and ECG abnormalities may occur in either disease. A history of chills, recent tooth extractions and the finding of petechiae and hematuria in a patient over 16 years of age strongly favor bacterial endocarditis, while subcutaneous nodules, erythema marginata, frank arthritis and chorea point to rheumatic fever. Occasionally the two diseases coexist.

Buford Hall, M.D., Lexington, *Jl Kentucky Med. Asso.*, July, 1954.

Gastric Function Tests Often Fallacious

The standard test meal is, in practice, full of pitfalls and fallacies, and unless done with care by an interested observer will not justify the discomfort caused to the patient or the time taken in the laboratory. It has been said that the test meal is a much better test of the patient's endurance than of his gastric function. Gagging and retching may cause secretory inhibition and produce an apparent achlorhydria. Achlorhydria, with increased difference between the free and total acid, may be due to the gruel being made with milk or to the patient having had a meal before the test was started. The presence of flecks of blood may be due to the trauma of suction on

the mucosa. A chemical test for blood is too sensitive; it is better to rely on naked-eye appearance. Appreciable blood-staining is usually significant. The end of the tube may sometimes slip back into the gullet or pass through into the duodenum. Nevertheless, when the test is done by someone with experience and sympathy, particularly if the nasal rather than the oral route is used, it can be made reasonably comfortable and the major difficulties can be avoided.

F. A. Jones, M.D., *British Med. Jl*, June 5, 1954.

Surgical Conditions Simulating Virus Infections

The diagnosis of virus infection is readily made and difficult to prove or disprove in many an obscure case. A typical case is reported in each of 3 categories. Several other conditions in which the error is made readily come to mind.

In a recent 12-month period one of us (A.B.) has operated upon 6 persons with perforated appendicitis or appendiceal abscess. In 3 of these the patients had been treated preoperatively with antibiotics for virus gastroenteritis.

To differentiate obstructive jaundice from infectious hepatitis is not always easy. In a few instances all tests fail to establish the diagnosis and exploratory operation is necessary.

A gardener, 39, was first seen in August, 1952. He had visited relatives 5 weeks before onset; one confined to bed with jaundice. Present illness began with lassitude, chills, fever, headache, and joint aches and pains, soon followed by nausea and vomiting, mild abdominal discomfort and constipation; 3 days later urine dark and stools very much lighter. His physician made a diagnosis of infectious hepatitis. Bed rest and a high-carbohydrate, high-protein diet were instituted. The jaundice deepened, the nausea and vomiting persisted, and abdominal pain disappeared.

He was admitted with the abdomen distended and tenderness in the r. upper quadrant, but no masses were palpable. A flat x-ray plate revealed several shadows suggestive of cholethiasis. Because of this finding and relatively normal liver function operation was done and obstructing stones removed from the common bile duct.

Virus pneumonitis or atypical primary pneumonitis is an acute respiratory infection characterized by pulmonary infiltration most readily demonstrated by x-ray examination, minimal physical findings, cough, sputum, and prolonged convalescence. Many such cases were treated at home, no x-ray examination. Each such cases should have at least one x-ray examination in the convalescent period, because of the possibility of bronchogenic cancer.

A man, 62, stated that he had virus pneumonia 2 years before admission. He had a rusty sputum, chills, fever and pain in the l. side of chest, was in bed several weeks but recovered his normal health. X-rays were not made. At the time of admission he stated he had a similar attack 3 mos. prior with cough, prune-juice sputum, fever, and chest pain. He was treated with antibiotics, with improvement. No x-rays were made. Because the symptoms did not resolve, the patient finally agreed to come to the hospital. X-rays showed a left lower lobe segmental atelectasis. Bronchoscopy was negative, but carcinoma cells were found in the bronchial secretions. A left pneumonectomy was performed and the patient discharged 2 weeks later. However, he died of metastasis 6 mos. after operation.

Albert Behrend, M.D., et al, Philadelphia, *Penn. Med. Jl*, June, 1954.

NEW PHARMACEUTICAL PRODUCTS

Ledericillin in Oil *(Lederle)*
Repository preparation of penicillin for deep intramuscular injection. Each cubic centimeter contains 300,000 units of penicillin G in sesame oil with 2% aluminum monosterate. *Indications:* local or systemic infections caused by penicillin-sensitive organisms. *Dosage:* As determined by physician. *Supplied:* In 10 cc. vials.

Primoplex *(Lederle)*
Geriatric liver and vitamin preparation administered intramuscularly. *Indications:* B complex deficiencies. *Dosage:* As determined by physician. *Supplied:* vials with 2 cc. ampuls of diluent.

Ambrol *(Patch)*
Each yellow-uncoated tablet contains: secobarbital 50 mg., phenobarbital 50 mg. Acetylsalicylic acid 195 mg., thiamine hydrochloride 5 mg. *Indications:* headaches, neuralgias, sciatica, dysmenorrhea, insomnia, anxiety states. *Dosage:* one tablet on retiring. For daytime sedation one-half to one tablet as directed by the physician. *Supplied:* In bottles of 100 tablets.

Strontolac Capsules *(Wyeth)*
Each capsule contains 192 mg. strontium ion as 0.7 Gm. (11 grains) of strontium lactate trihydrate. *Indications:* management of osteoporosis and for relief of pain in the aged due to this condition. *Dosage:* 3 capsules 3 times daily. *Supplied:* bottles of 100 capsules.

Otobiotic, White's *(White)*
Each cc. contains, neomycin sulfate 3.5 mg., sodium propionate 50 mg. *Indications:* Otitis externa and chronic otitis media. *Dosage:* Otitis externa; several drops instilled into the affected canal 3 or 4 times daily. Chronic otitis media; partially fill external canal of affected ear. After several minutes allow excess solution to flow out. Repeat 3 or 4 times daily. *Supplied:* 15 cc. dropper bottles.

Polycycline Capsules *(Bristol)*
Tetracycline hydrochloride. Broad-spectrum antibiotic. *Dosage:* As determined by physician. *Supplied:* Bottles of 25 (100 mg.) and bottles of 16 (250 mg.).

Reserpoid, Compressed Tablets, Scored *(Upjohn)*
Pure crystalline alkaloid (reserpine) of Rauwolfia serpentina. Each tablet contains Reserpine, 0.1 or 0.25 mg. *Indications:* treatment of patients with mild to moderate essential hypertension. *Dosage:* As determined by physician. *Supplied:* 0.1 mg., bottles of 100 and 500; 0.25 mg., bottles of 100 and 500.

Tetracyn Topical Ointment *(Roerig)*
Contains 30 mg. of tetracycline hydrochloride per gram in petrolatum base. *Indications:* topical therapy due to the many Tetracyn-sensitive microorganisms. *Dosage:* As determined by physician. *Supplied:* ½ and 1 ounce tubes.

Useful and Useless Leads in Electrocardiography

One positive result did come from the attempt to use a 3-lead electrocardiogram routinely. It became apparent that leads I and a VF are the only limb leads which are needed, and that the other limb leads are superfluous. Multiple chest leads are indispensable in order to interpret the ECG adequately.

The diagnostic efficiency of the ECG in posterior-wall infarction is not high, which led to the use of esophageal and posterior chest leads. The esophageal leads have been shown to be both impractical and unreliable. As for the posterior chest leads, personal study over several years has failed to disclose a single instance where such leads have constituted the chief evidence of a myocardial infarction. If an ECG will manifest a posterior-wall infarction, it will do so either through lead aVF, or through the anterior chest leads.

For practical reasons the chest leads can be limited to V1, V3, and V5. There seems to be no need ordinarily to take the other limb leads. Other sets of chest leads are occasionally needed; right chest leads in cases of suspected right preponderance; and high left chest leads in cases of suspected high infarction. Finally, in arrhythmias one should take long strips of aVF and V1, including a recording during carotid sinus pressure.

A. I. Schaffer, M.D., *Current Med. Dig.*, July, 1954.

Twelve Years' Experience With Electrosleep (Shock) Therapy

In 12-years experience with electrosleep treatments, 10,170 patients receiving 74,275 treatments, it becomes evident that this treatment is a great boon in acute emotional and psychotic disorders. It is principally of value in treatment of the emotional disorders, particularly the depressions. Individuals with depression, who received electrosleep therapy, were restored to normal or were well on the road to recovery within 26 days. Similar cases 15 years ago, who did not receive electrosleep treatments, required 126 days for recovery. Electrosleep therapy greatly shortens the period of hospitalization and prevents suicides. Patients are promptly relieved of their great mental suffering; they soon sleep with little or no sedation, and they gain weight. Psychotherapy is often very difficult to carry out in the depressed, agitated, or manic patient, but after electrosleep therapy they can be benefitted by psychotherapy.

Complications are few, and there have been no fatalities caused by electrosleep treatments in this group of more than 10,000 patients.

In subsequent attacks, the patient often says "I am getting depressed again and I want another series of electrosleep treatments."

C.S. Holbrook, *Jl. La. State Med. Soc.*, 106:7, 1954.

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1. Gitman, L., and Kaplowitz A.: Use of diethylstilbestrol in complications of pregnancy. New York State J. Med. 50:2823: 1950.
2. Ross, J.S.: Use of diethylstilbestrol in the treatment of threatened abortion. N. Nat. M.A. 43:20, 1951.
3. Karnaky, K.J.: Am. J. Obsts. & Gynec. 58,622. 1949.

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Survivorship After Recovery From Disability Due to Heart Disease

This study is based upon the records of 611 men, 537 of whom had been disabled by arteriosclerotic heart disease, 33 by hypertensive cardiovascular disease, and 41 by valvular heart disease. Of those with arteriosclerotic heart disease, 420 had experienced a coronary occlusion. For the men in the arteriosclerotic and hypertensive groups, the median age at time of recovery from disability was somewhat over 51 years; for the valvular heart disease group, the median age was 46 years.

A number of the records for men with arteriosclerotic heart disease contained data on blood-pressure findings during the period of disability. Hypertension had an adverse effect on their longevity. Thus, in men with a history of coronary occlusion and high BP, the proportion surviving at least 5 years was 72%, as against 80% in those without hypertension. At the end of the 10th year, the proportions surviving were 33% and 57%, respectively. The experience in cases without coronary occlusion was too small to yield significant results.

The relation of age at recovery to survivorship was also investigated. In the group with coronary occlusion, the survivorship record through the fourth year after recovery from disability was as good for those at ages 50 and over at time of recovery as for those in the age group 40 to 49. However, at the end of 10 years, the older men fared better with a survivorship rate of 59%, compared with 42% in the younger group. Among those *without* a history of coronary occlusion, the record was about the same in the two age groups up to the 6th year, after which the younger men had the higher survivorship rate.

Continued from page 740

Men who recover from disability due to heart disease have a death rate markedly higher than the average for persons insured at standard premium rates. The best record, relatively, is found among men with arteriosclerotic heart disease but without coronary occlusion. For this group mortality was 2½ times that among standard insured lives, compared with nearly 4 times among patients with a history of occlusion, and nearly 8 times among those with valvular heart disease. The older men had a more favorable experience than the younger men. Thus, in the group with arteriosclerotic heart disease but *without* coronary occlusion, the mortality among those at ages 50 and over was a little more than twice that among standard insured lives, whereas at ages 40 to 49 the ratio was 4 to 1. In cases with a history of coronary occlusion, these ratios were 2½ and 9 to 1, respectively.

Most deaths in this study were due to heart disease — 5 out of every 6 deaths among the arteriosclerotic and hypertensive cases as a whole. Coronary occlusion was reported as the cause in 3% of all the fatalities in the group; other vascular and renal conditions and cancer accounted for most of the remaining deaths where the cause was known. In the valvular heart group, heart disease was recorded as the cause of death in 80% of the cases; in a little over ⅓rd of the total, death was attributed to valvular heart disease.

A prime obstacle to the rehabilitation of cardiacs is their fear that work will be hazardous for them. Actually, under good medical supervision a large proportion of patients with heart disease can resume work and activity suited to their physical capacity and, by so doing, benefit both physically and psychologically.

G.P. Robb & H.H. Marks, *Bul. Metropolitan Life Ins. Co.*, 35: 4, 1954.